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Introducing New Book

Making a Bid for a Better Life

Amanda Lanzillo, *Pious Labour: Islam, Artisanship, and Technology in Colonial India*, Three Essays Collective, Gurugram, 2025, xiii + 231 pages, Rs. 750/-

Saurav Kumar Rai

Just before his death, the legendary Italian Marxist thinker, activist and political theorist Antonio Gramsci, in a letter written from jail to his 13-year-old son Delio, reflected on the significance of history as a discipline. He wrote: 'Darling Delio, I am feeling a little tired and can't write much. But please write to me all the same and tell me everything at school that interests you. I think you must like *History*, as I liked it when I was your age, because it deals with living people, and everything that concerns people, as many people as possible, all people in the world, in so far as they unite together in society and work and struggle and make a bid for a better life.' The present book by Amanda Lanzillo is exactly about such struggling people making their bid for better life.

The late nineteenth and early twentieth century in India and world witnessed rapid changes in technology and production processes. It was often devastating for traditional modes of production and subjected conventional artisans to enormous stress. Amanda Lanzillo in this book delves with mechanisms adopted by Indian artisans, particularly Muslims, to not only survive this technological onslaught, but also pose themselves as predecessors of many new technologies. In doing so, Lanzillo points towards the role played by radical reinterpretation of religious traditions by respective artisanal classes to make sense of these changes and claim new knowledge. This, as the author claims, paved a new form of Islam which may be termed as 'artisan Islam' (p. 2). Through it, argues Lanzillo, Muslim artisans both challenged and negotiated colonial capitalism and their position in the social hierarchies of North India. To quote Lanzillo, 'Through claims on the piety of their work, Muslim artisans integrated their material and embodied knowledge with religious narratives, asserting social status and technological authority in a colonial economy that often robbed them of both' (p. 3).

The book nuances our understanding of the epistemological categories of 'artisans' as well as 'Islam'. While colonial interpretation drew stark line of differences between cottage-based artisans and industrial labour, this book showcases the flexibility with which traditional artisans moved between familial cottage-based workshops and capitalist factories. Similarly, while traditional studies on South Asian Islam focus mostly on elite clerical discourses, this book brings the voice of artisanal or labouring class in the making of South Asian Islam. It delineates how practitioners themselves make sense of their faith and religious practices based upon their own mundane contexts. In this regard, the book almost retraces the path opened up by Carlo Ginzburg's seminal work *The Cheese and the Worms* (1976). Likewise, just as Ginzburg analyses the distinctive religious beliefs and cosmogony of Menocchio, a petty Italian peasant; Lanzillo delineates distinct notions of piety as embedded in vocations pursued by Muslim artisans. It takes into account how practitioners (artisans in this case) themselves understand their faith and associated practices.

Drawing upon previously overlooked Urdu technical/artisanal manuals produced roughly between mid-nineteenth and early twentieth century, Lanzillo examines the religious, social, and labouring lives of various artisanal groups - scribes and press workers, metalsmiths, tailors, carpenters, boilermakers, and stonemasons - with separate chapters devoted to each. It is interesting to note that these artisanal groups believed they

were divinely ordained and endowed with 'revealed knowledge' to pursue their respective vocations. By performing their work with sincerity, they felt they were obeying a divine commandment, thus elevating their everyday labour to the status of *pious labour*. As for instance, blacksmiths believed that the Almighty himself has given them power to turn to wax what was iron by nature (p. 1). Similarly, the Muslim tailors claimed that it was Prophet Idris who first sewed a garment to clothe himself and that tailoring skills were revealed to him by God (p. 73), which was subsequently passed on to tailoring community.

Such notions were also helpful in challenging the marginalization of respective artisanal class in the era of strengthening social hierarchies by invoking pious nature of their vocation. The Muslim artisans excluded from 'ashraf' (elite) status employed a variety of religious and social narratives to claim status and dignity for their communities. Here it is noteworthy that elite and middle-class Muslims often portrayed Muslim artisans as being excessively influenced by Hindu traditions (p. 116), or as not being 'Muslim' enough. And, hence several Muslim *anjumans*, or civic associations were active in urban centers like Lahore and Kanpur to impart religious education to Muslim working class population engaged in industries as well as artisanal production. The artisan manuals published during this period shared such pursuits of *anjumans*. As for instance, Lanzillo refers to an artisan manual meant for carpenters titled *Lakri ka Kam* (or, The Craft of Woodwork), which emphasized the similar values that members of *anjumans* sought to inculcate. However, at the same time such manuals tried to establish links between industriousness in artisan trades to Muslim piety and belief. The aforementioned manual, shows Lanzillo, positioned 'industry and trade' as core values of the Muslim *qaum* (community). It admonished Muslims who lacked interest in artisanship, asserting that God had created man and in turn endowed him with the powers of labour and material creation (p. 118). Thus, by elevating the moral and religious worth of artisanal labour, the manual also sought to enhance the social status of the artisans engaged in it.

Also striking is the manner in which modern technologies were framed within the intellectual and cultural horizons of traditional craftsmanship. For instance, Muslim scribes while taking pride in art of calligraphy, not only learned the art of lithography/printing, but also seen it as essential continuity of their skills. In this regard, Lanzillo mentions about *Daftar-i-Khattat* (or, The Book of Scribes) of Karimullah Khan which suggested that knowledge of lithography was not so different from the ability to fashion a reed pen or to form smooth lines (p. 23). In a similar vein, the artisans engaged in electroplating traced the origin of their knowledge in Muslim alchemy (pp. 59-61). Furthermore, deeming steam engine as Muslim technology (as discussed in Chapter 5) was yet another specimen of 'acculturation' of technology as well as 'braiding' of useful knowledge with traditional faith.

However, in the 'Introduction' of this book, the author argues that persistent colonial-era narratives portray labouring-class Muslims as religiously marginal and less orthodox than their elite counterparts (p. 5). Yet, as Gyanendra Pandey's celebrated essay "The Bigoted Julaha" demonstrates, colonial ethnography, census categories, and administrative accounts often constructed the *julaha* - the Muslim weaver - as inherently "bigoted" and fanatical. In light of Pandey's analysis, the assumption that the colonial state regarded labouring-class Muslims as less religious appears misplaced.

Nevertheless, the present book exquisitely delineates how artisans asserted Islamic narratives about their trades from within their own communities. In doing so it unfolds a whole world of labouring communities in front of the reader. In fact, every chapter of this book possesses the depth and scope to be expanded into a full-length monograph by future scholars. Last but not least, the book's fluent prose renders the entire narrative a genuinely pleasant read.

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Mapping Poverty beyond Income: A Multidimensional Approach to the Aralam Resettlement Farm Region in Kannur District, Kerala

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Vipin Chandran K.P.

Multidimensional poverty encompasses deprivations beyond income, including deficits in health, education, and living standards. This study examines such poverty among three tribal communities -Paniya, Mavilan, and Kurichya - living in the Aralam Resettlement Farm, a predominantly tribal region in Kerala. Using the Multidimensional Poverty Index (MPI), the analysis reveals that while overall poverty in Aralam is relatively low (below 20), stark disparities persist among the communities. The Paniya group faces the highest deprivation, reflecting deep intra-regional inequalities. These findings emphasize the limitations of generalized welfare approaches and highlight the importance of community-specific, evidence-based policy interventions. By uncovering the multidimensional nature of deprivation in tribal settings, the study offers critical insights for fostering inclusive and sustainable development among marginalized populations.

Keywords : Multidimensional poverty, Aralam, intensity of poverty, human development.

1. Introduction

Kerala stands out for its remarkable human development outcomes, marked by near-universal literacy, a robust healthcare system, and significant progress in gender equality - achievements widely acknowledged in India and beyond (Sen, 1997; Government of Kerala, 2020). Nevertheless, poverty assessments grounded purely in income measures tend to obscure the deeper, multidimensional deprivations that continue to constrain the lives of marginalized groups.Tribal communities, coastal residents, and the rural poor continue to experience multi-dimensional disadvantages such as inadequate housing, poor sanitation, limited digital access, and restricted opportunities for higher education (Chandran & Santhosh, 2020). To address these limitations, the Multidimensional Poverty Index (MPI) proposed by Alkire and Foster (2011) offers a more comprehensive analytical lens by assessing poverty across three critical dimensions-education, health, and standard of living. By identifying overlapping deprivations rather than relying on income alone, the MPI enables a deeper understanding of inequality and supports the formulation of inclusive, evidence-based policies tailored to Kerala's diverse socio-economic realities (Santos & Villatoro, 2018; Das & Paria, 2018).

An assessment of Kerala through the lens of the Multi-dimensional Poverty Index (MPI) reveals pronounced inequalities both across regions and among social groups. Despite Kerala's reputation for excellence in health and education, these achievements are not shared equally by all sections of society. Tribal populations in districts such as Wayanad, Idukki, and Kannur continue to face multiple deprivations, including limited access to safe water, poor housing conditions, and restricted avenues for higher education and skill development (Chandran & Santhosh, 2020). Likewise, communities in coastal regions and urban slums struggle with environmental threats, economic insecurity, and inadequate public services. By employing a multidimensional approach, these overlapping and often invisible forms of poverty become more apparent, paving the way for inclusive and precisely targeted policy responses (Alkire et al., 2017; Bagli & Tewari, 2019).

At the national level, India has made remarkable progress in reducing multidimensional poverty in recent years. As reported by NITI Aayog (2023), nearly 135 million people escaped multidimensional poverty between 2015-16 and 2019-21. During this period, the national MPI value declined from 0.117 to 0.066, with rural poverty dropping from 32.59% to 19.28% and urban poverty from 8.65% to 5.27%. Kerala stood out as the top performer, reducing its multidimensional poverty rate from 0.70% to 0.55% (NITI Aayog, 2023; Reshmi, 2021). Yet, significant disparities persist within the state - Wayanad reported the highest poverty rate at 2.82%, while Ernakulam recorded none - underscoring the need for localized and community-specific policy interventions.

This study focuses on the multidimensional poverty experienced by tribal families in the Aralam Resettlement Farm of Kannur district, Kerala. Established in 1970 as a central government agricultural initiative, the Aralam farm was later converted in 2006 under the Tribal Sub-Plan (TSP) to provide land and livelihood opportunities for around 3,500 landless tribal families. While half of the land was allocated for resettlement, the remaining portion was retained by the Aralam Farming Corporation to promote economic growth and institutional support for the relocated communities (Government of Kerala, 2006). Despite these well-intentioned measures, the area continues to grapple with persistent challenges in ensuring inclusive, sustainable, and equitable development outcomes for its tribal population.

Despite Kerala's overall progress in reducing multidimensional poverty, tribal communities in the Aralam Resettlement Farm, Kannur, continue to face persistent deprivation. Using the Alkire-Foster MPI framework, this study assesses 60 households across three tribal groups and finds consistent shortfalls in education, healthcare, nutrition, clean water, and infrastructure - revealing a gap between policy ambitions and on-ground realities. These disparities highlight the limitations of broad welfare schemes and the need for culturally sensitive, community - specific interventions. The study urges stronger implementation, regular impact assessments, and active participation of Scheduled Tribe (ST) promoters and local governance bodies to ensure equitable and inclusive development.

2. Objectives of the Study

1. To measure the extent of multidimensional poverty among tribal households in the Aralam Resettlement Farm using the Alkire-Foster MPI framework.
2. To identify major dimensions of deprivation and assess the effectiveness of current development initiatives in meeting the needs of resettled tribal communities.

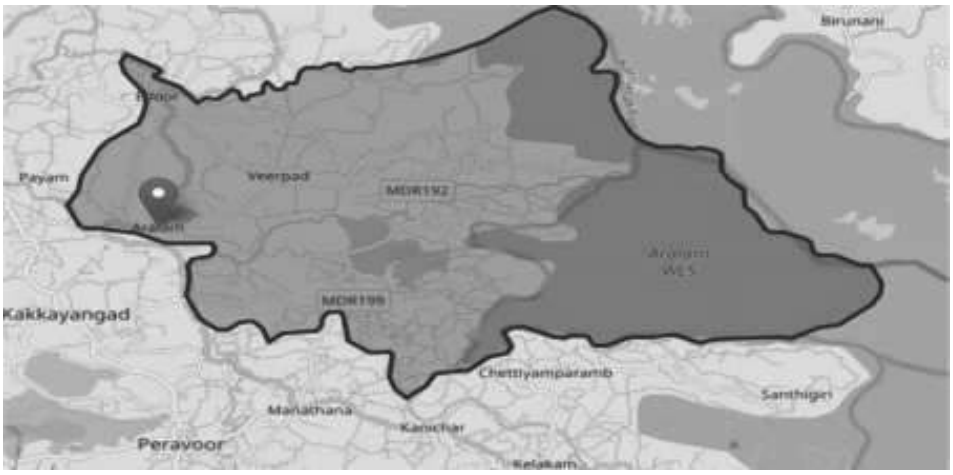
3. Methodology

a. Data sources and sample design

This study on multidimensional poverty in the Aralam Resettlement Farm draws on both primary and secondary data sources. A total of 60 households, comprising 204 individuals from the Paniya, Mavilan, and Kurichya tribal communities, were surveyed in Blocks 9 and 12 of the farms. These locations were selected with the approval of the Integrated Tribal Development Project (ITDP) and the Tribal Resettlement and Development Mission (TRDM). Of the surveyed population, 176 individuals were aged above 13, while 28 were children under 12. Primary data were collected through structured questionnaires and interviews focusing on core dimensions of deprivation - healthcare access, education, housing, and living standards. To contextualize field observations, secondary data were obtained from official reports (TRDM, NITI Aayog), and publications from UNDP, the Oxford Poverty and Human Development Initiative (OPHI), and other academic sources.

Aralam, located in the foothills of the Nilgiri ranges in Iritty Taluk of Kannur district, Kerala, lies close to the Karnataka border. Rich in biodiversity and water resources, the region is home to several rivers and the Aralam Wildlife Sanctuary. As per the 2011 Census, Aralam had a population of 29,328, with a sex ratio of 1031 and a literacy rate of 80.19%, slightly below the state average. Scheduled Tribes account for 14.86% of the population, reflecting the village's significant tribal presence. Initially established in 1970 as

a central government agricultural farm cultivating rubber, coconut, cocoa, and pepper, the area underwent a transformation in 2006 when the Government of Kerala acquired part of the land under the Tribal Sub-Plan (TSP) to rehabilitate landless tribal families. Of the thirteen farm blocks, six (Blocks 7, 9, 10, 11, 12, and 13) were allocated for resettlement, while the remaining area continued under the management of the state-owned Aralam Farming Corporation. Approximately 3,500 tribal families were allotted one-acre land titles as part of the rehabilitation programme. However, progress has been uneven - by 2017, only 1,503 families had permanently settled, 461 resided temporarily, and 1,538 had left the settlement. Situated near ecologically sensitive forest areas and the Western Ghats, Aralam represents a complex landscape where tribal rehabilitation, environmental conservation, and development policy intersect.



b. Tools for Analysis: Alkire-Foster MPI Methodology

The Alkire-Foster (AF) methodology is a widely accepted and comprehensive approach to measuring multidimensional poverty. The AF methodology involves two main stages: identification and aggregation. In the identification stage, individuals are assessed using a set of predefined indicators. A deprivation cut-off is applied to each indicator to determine whether a person is deprived in that specific area. The deprivations are then weighted and summed to generate a deprivation score. A second threshold - typically set at 33% (0.33), as used in India's National MPI - identifies individuals as multidimensionally poor if they are deprived in at least one-third of the total weighted indicators (Dirksen, J., & Alkire, S, 2021; UNDP, 2023).

Once the poor are identified, the aggregation stage calculates two key metrics:

- Headcount Ratio (H): The proportion of the population that is multidimensionally poor, indicating the incidence of poverty.
- Intensity of Poverty (A): The average share of deprivations experienced by those identified as poor, reflecting how poor they are.

These two metrics are combined to compute the Multidimensional Poverty Index (MPI), denoted as M• , using the formula:

MPI (M•) = H × A

The Multidimensional Poverty Index (MPI) assesses poverty using ten indicators grouped into three core dimensions: Health, Education, and Standard of Living. Health includes nutrition - measured by undernourishment in any household member - and child mortality, where a household is deprived if any child has died. Education evaluates whether any member has completed at least five years of schooling and whether all school-aged children (6-14 years) attend school. The Standard of Living dimension examines access to clean drinking water, improved sanitation, clean cooking fuel, electricity, quality flooring, and ownership of essential assets such as a radio, TV, phone, bicycle, motorbike, car, or refrigerator. Together, these indicators provide a comprehensive view of poverty beyond income alone.

4.1. Discussion and Results

a. Deprivation based on Health Indicator

Tribal communities face significant healthcare challenges, with poor health outcomes driven by limited access to clean and safe drinking water, nutritional deficiencies, alcohol addiction, illiteracy, traditional practices, and unhealthy lifestyles. These factors contribute to a deteriorating overall health status. In the Multidimensional Poverty Index (MPI), health is measured through two key indicators: child mortality and malnutrition. A household is considered deprived in child mortality if any child has died in the past five years, and it is classified as deprived in nutrition if at least one member is undernourished.

Table 1 Deprivation based on Health Indicators

Community	Total Number of Household	Nutrition (%)	Child Mortality (%)
Paniya	9	77.7	11.1
Mavilan	17	41.2	5.9
Kurichya	34	32.4	0
Total	60	41.6	3.33

Source: Survey Data

Table 1 highlights disparities in health-related deprivation among three communities. The Paniya community shows the highest levels of deprivation, with 77.7% of households affected by poor nutrition and 11.1% experiencing child mortality. In contrast, the Kurichya community has the lowest levels of deprivation, with only 32.4% facing nutritional issues and no reported child mortality. The Mavilan community falls in between, with moderate levels of both indicators. Overall, the total averages (41.6% for nutrition and 3.33% for child mortality) suggest that while some communities fare better, significant health inequalities persist. These figures highlight the importance of targeted health interventions to address nutritional deficiencies and child mortality in these tribal communities.

4.2 Deprivation based on Education Indicator

Educational attainment is assessed using two key indicators: years of schooling and school enrollment of children. The ‘years of schooling’ indicator reflects the literacy level and educational understanding of household members. A household is considered deprived if none of its members have completed at least five years of formal education. Likewise, if there is at least one school-aged child not enrolled in school, the household is also classified as deprived. Table 2 presents the extent of educational deprivation among different tribal communities based on these criteria.

Table 2 Deprivation based on Education Indicators

Community	Total Number of Household		Years of Schooling (%)	School Enrolment (%)
Paniya	9	33.3	0	
Mavilan	17	23.5	0	
Kurichya	34	8.82	0	
Total	60	16.66	0	

Source: Survey Data

Table 2 reveals significant educational deprivation among the tribal communities studied, particularly in terms of years of schooling. The Paniya community shows the highest deprivation, with 33.3% of households having no member who completed at least five years of schooling. Mavilan households follow with 23.5%, while Kurichya households have the lowest deprivation at 8.82%. However, in terms of school

enrolment, all three communities show 0% deprivation, indicating that all school-aged children are currently enrolled in school. This suggests improvement in access to education for the younger generation, despite the low educational attainment among older household members.

4.3 Deprivation based on Standard of Living Indicator

Table 3 Deprivation based on Standard of Living Indicator

Community	Total Number of Household	Electricity (%)	Sanitation (%)	Drinking Water(%)	Housing (%)	Fuel (%)	Asset (%)
Paniya	9	11.1	55.5	0	55.5	100	0
Mavilan	17	11.7	5.9	0	35.2	53	0
Kurichya	34	5.8	5.9	0	20.5	35.2	0
Total	60	8.33	13.3	0	30	50	0

Source: Survey Data

The table 3 presents deprivation levels across three tribal communities - Paniya, Mavilan, and Kurichya - based on standard of living indicators. All communities exhibit complete deprivation in access to drinking water and household assets (0%), highlighting severe basic infrastructure gaps. Paniya households show the highest deprivation in fuel use (100%), indicating reliance on traditional or unsafe energy sources. Mavilan and Kurichya also show significant fuel-related deprivation (53% and 35.2%, respectively). Access to sanitation and electricity is low across all groups, with Paniya performing slightly better in sanitation (55.5%) than the others. Kurichya shows relatively lower deprivation in housing and fuel compared to the other two, but all communities remain highly deprived across most indicators. These findings highlight the areas where interventions are needed to improve the standard of living in these communities, with a particular focus on improving access to fuel, sanitation, and housing.

4.4 Number of Deprived persons in community

Table 4 Number of Deprived Persons in Different Community

Community	Total number of people		Total number of deprived persons	Percentage of Deprivation (%)
Paniya	29	8	53.4	
Mavilan	48	5	33.3	
Kurichya	127	2	13.3	
Total	204	15	100	

Source: Sample Data

Table 4 illustrates the extent of individual deprivation among three tribal communities. The Paniya community exhibits the highest percentage of deprivation at 53.4%, indicating that over half of its population lacks access to essential services or resources. Mavilan follows with a 33.3% deprivation rate, while Kurichya shows the lowest at 13.3%, suggesting relatively better living conditions. Despite having the smallest population (29), the Paniya community accounts for more than half of the total deprived individuals. Kurichya, with the largest population (127), has the lowest number of deprived persons, indicating more effective access to basic needs. Overall, the data points to significant disparities in deprivation levels among these communities, with Paniya being the most disadvantaged.

4.5 Head Count Ratio

The Multidimensional Poverty Index (MPI) captures poverty through two key components: the incidence

of poverty (headcount ratio), which measures the proportion of people experiencing multiple deprivations, and the intensity of poverty, which reflects the average share of deprivations among the poor. In the case of 60 sample households across three tribal communities, the headcount ratio indicates that 15 individuals are living in severe multidimensional poverty. These individuals face deprivation either in all indicators of a single dimension or across multiple dimensions - for instance, residing in households with malnourished members, lacking clean drinking water, having dirt floors, and using unimproved sanitation. This reveals the compounded and overlapping nature of poverty within these marginalized groups.

Table 5 Head Count Ratio of Household

Community	Total number of people	Number of deprived persons	Head Count Ratio(H)
Paniya	29	8	0.275
Mavilan	48	5	0.104
Kurichya	127	2	0.015
Total	204	15	0.073

Source: Survey data

Table 5 presents the Head Count Ratio (H) of households across three tribal communities, indicating the proportion of individuals who are multidimensionally poor. The Paniya community shows the highest headcount ratio at 0.275, meaning 27.5% of its population is living in multidimensional poverty. This is followed by the Mavilan community with a headcount ratio of 0.104 (10.4%), while the Kurichya community has the lowest ratio at 0.015 (1.5%), reflecting significantly better living conditions. The total headcount ratio for all three communities is 0.073, suggesting that 7.3% of the total population in the sample experiences multiple deprivations. These figures highlight stark disparities between the communities, with the Paniya being the most disadvantaged and the Kurichya relatively better off.

4.6 Intensity of Poverty among Community

The intensity of poverty (A) represents the average number of deprivations experienced simultaneously by poor individuals. It reflects the proportion of weighted indicators in which, on an average, the poor are deprived. To calculate intensity, the deprivation scores of all poor households are summed and then divided by the total number of poor individuals. In this calculation, the education and health dimensions are each assigned a weight of 1/6 (16.7%), while each indicator within the standard of living dimension carries a weight of 1/18 (5.6%).

Table 6 Intensity of Poverty among Community

Community	Weighted score of the Deprived	Number of deprived persons	Intensity of Poverty
Paniya	3.32	8	0.415
Mavilan	1.89	5	0.378
Kurichya	0.66	2	0.33
Total	5.87	15	0.4

Source: Survey data

Table 6 presents the intensity of poverty among three tribal communities, based on the average number of weighted deprivations experienced by the poor. The Paniya community shows the highest intensity of poverty at 0.415, meaning that on an average, each deprived person is experiencing 41.5% of the total possible deprivations. This is followed by the Mavilan community with an intensity of 0.378, and the Kurichya

community with the lowest intensity at 0.33. The combined intensity of poverty across all three communities is 0.4, indicating that the poor, on an average, face 40% of the weighted deprivations. These figures reflect not only how many people are poor but also how deeply they are affected by poverty.

4.7 Multidimensional Poverty Index in Aralam resettlement farm

Income-based approaches to measuring well-being are inherently one-dimensional, focusing solely on income as the primary indicator of prosperity. The Multidimensional Poverty Index (MPI) embodies this perspective by incorporating multiple dimensions of well-being, including education**,** health**,** and standard of living.

A household is considered multidimensionally poor if its weighted deprivation score exceeds 33.33%, meaning it is deprived in one-third or more of the weighted indicators. This threshold helps to identify households that suffer multiple forms of deprivation simultaneously, offering a clearer and more holistic understanding of poverty beyond income alone.

Table 7 Multidimensional Poverty Index

Community	Head Count Ratio (H)	Intensity of Poverty (A)	MPI
Paniya	0.275	0.415	0.114
Mavilan	0.104	0.378	0.039
Kurichya	0.015	0.33	0.0049
Total	0.073	0.4	0.029

Source: Survey data

This study analyzes 60 households comprising 204 individuals across three tribal communities to assess multidimensional poverty levels. Table 7 summarizes the Multidimensional Poverty Index (MPI) by combining two components: the Head Count Ratio (H), which reflects the proportion of people, identified as multidimensionally poor, and the Intensity of Poverty (A), which captures the average degree of deprivation among the poor. Among the communities, the Paniya group records the highest MPI at 0.114, indicating both a high prevalence of poverty and deeper levels of deprivation. The Mavilan community follows with an MPI of 0.039, while the Kurichya community reports the lowest MPI at 0.0049, reflecting minimal poverty and less severe deprivation. The overall MPI for the entire population stands at 0.029, suggesting that while multidimensional poverty exists, its severity and reach vary notably between communities. These results highlight stark disparities, with the Paniya community facing the most acute challenges. The findings emphasize the need for targeted, community-specific strategies - particularly for vulnerable groups like the Paniya - to address the interconnected dimensions of poverty more effectively.

5. Conclusion

Despite sustained policy efforts and numerous development programmes aimed at improving tribal welfare, many communities continue to grapple with entrenched socio-economic disadvantages. Findings from the Aralam Resettlement Farm region reveal marked disparities in development outcomes across different tribal groups, exposing the uneven nature of progress. While the overall Multidimensional Poverty Index (MPI) points to relatively low aggregate poverty, a closer examination uncovers significant inter-group variations in deprivation and access to opportunities. Some tribes have begun to benefit from recent interventions, whereas others remain persistently marginalized, reflecting the structural limitations of uniform, top-down policy approaches. Addressing these internal disparities through context-specific, participatory, and inclusive strategies is essential to prevent the widening of the development gap within tribal populations and to ensure equitable progress across all communities.

The priority should now shift towards enhancing the effectiveness and cultural relevance of existing

welfare programmes through a more community-driven and context-sensitive approach. Many initiatives fail to achieve their intended impact because they overlook the lived realities and diverse socio-cultural contexts of tribal communities. Strengthening access to higher education, professional training, and skill development - where tribal representation remains disproportionately low - must be accompanied by efforts to raise awareness of government schemes, improve digital literacy, and provide career guidance and motivational support. Public health interventions should adopt culturally appropriate and localized outreach to ensure better participation and outcomes. Resource allocation and programme monitoring must reflect the internal socio-economic diversity among tribal groups, while empowering ST promoters and local facilitators to identify community-specific needs, bridge information gaps, and ensure transparency and accountability at the grassroots level.

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Cybercrime Awareness and Mental Health Outcomes Among Young Adults: Insights from Kollam

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Amritha Krishna A.S.

The increasing penetration of internet usage among young adults has brought cybercrime to the forefront as a critical public policy issue, especially regarding its psychological impacts. This study investigates the awareness levels of cybercrime and its association with mental health outcomes among young adults in Kollam district. Primary data were collected through a structured questionnaire administered to 100 respondents, and secondary data were sourced from various published materials. Using percentage analysis, simple correlation, and regression techniques, the study examines the link between cyber victimisation, cyber awareness, and psychological effects such as fear, sadness, and anxiety. Findings reveal a moderate positive correlation between time spent on social media and negative mental health outcomes, and a negative correlation between cyber awareness and victimisation frequency. The results underscore the importance of cyber awareness programmes in mitigating the mental health risks associated with cybercrime among young adults.

Keywords: Cybercrime awareness, mental health, cyber victimisation, social media impact, young adults.

The unprecedented growth of digital technology has revolutionised modern life, offering new opportunities for communication, education, and economic activity. However, this rapid digitalisation has also introduced significant vulnerabilities, particularly in the form of cybercrime. Cybercrime encompasses a wide range of illegal activities conducted through digital devices and networks, including hacking, identity theft, cyberbullying, online fraud, and the unauthorised exploitation of personal information. As digital engagement increases, so too does exposure to potential cyber threats, making cybercrime a pressing concern for policymakers, educators, and public health professionals alike.

Young adults, in particular, represent a highly exposed group. Their extensive use of social media platforms, online gaming, digital banking, and information-sharing networks places them at heightened risk of cyber victimisation. The psychological repercussions of cybercrime, including fear, sadness, anxiety, and feelings of helplessness, are increasingly being recognised as serious mental health concerns. Although the financial losses linked to cybercrime are more readily measurable, its effects on mental health remain largely overlooked in mainstream research and policy debates.

In India, the surge in internet penetration, especially through affordable smartphones and government initiatives like 'Digital India,' has accelerated online participation. However, public awareness regarding cyber security practices has not grown proportionately. Despite several cyber awareness campaigns and the establishment of cyber cells within police departments, young adults often lack the necessary knowledge and strategies to protect themselves from online threats. Consequently, cybercrime not only undermines personal safety but also places substantial pressure on the mental health infrastructure.

Against this background, the present study investigates the interplay between cybercrime awareness, cyber victimisation experiences, and mental health outcomes among young adults in Kollam district, Kerala. In doing so, it contributes to the understanding of cyber psychological impacts in the Indian context and offers insights for designing more effective prevention strategies.

The objectives of the study are:

- To assess the level of cybercrime awareness among young adults.
- To examine the frequency and nature of cyber victimisation.
- To explore the relationship between cybercrime exposure and mental health outcomes such as fear, sadness, and anxiety.
- To analyse the protective role of cyber awareness in mitigating psychological harm.

The following hypotheses were formulated for empirical testing:

- Higher cyber awareness is associated with a lower likelihood of cyber victimisation.
- Greater exposure to cybercrime correlates positively with negative mental health outcomes.

Related Works

Cybercrime has evolved rapidly in recent decades, becoming a significant societal challenge with implications for personal safety, public policy, and mental health. Several scholars have contributed to understanding this phenomenon from various perspectives.

Solano and Peinado (2021) highlighted the growing costs and devastating effects of cyber-attacks worldwide, stressing the inadequacy of existing defence mechanisms against increasingly sophisticated threats. Gandhi (2012) observed that cybercrime has emerged as a major threat to governance and social order in India, necessitating the establishment of dedicated cyber cells and public awareness initiatives.

In their early work, Wall (1998, 2001) distinguished between cyber-trespass, cyber-deception, cyber-pornography, and cyber-violence, laying the foundation for categorising different types of cyber offences. Subsequent researchers, such as Sarmah (2017), examined the evolution of cyber law in India, asserting the critical role of legal frameworks in deterring online crimes.

The psychological effects of cybercrime have also drawn academic attention. Ramdinmawii (2014) and Ken (2010) documented the emotional toll cyber victimisation can have on individuals, particularly adolescents, including experiences of fear, anxiety, depression, and social isolation. Research by Cassim (2009) and Khandelwal (2011) emphasised the importance of continuous education, legislative updating, and international cooperation to combat the evolving threat landscape.

Notably, studies by Aghatise (2006) and Longe (2004) focused on the vulnerabilities of internet users stemming from a lack of technical knowledge and the slow adaptation of protective behaviours, suggesting that education and awareness are crucial deterrents against cybercrime.

Despite these contributions, gaps remain in the empirical investigation of the psychological impacts of cybercrime on young adults within the Indian context, particularly in relation to their cyber awareness levels. Most existing studies either focus on technical security aspects or general victimisation rates, without sufficiently exploring mental health outcomes.

Accordingly, the present study aims to bridge this gap by empirically examining how cybercrime awareness and victimisation experiences are associated with mental health outcomes among young adults in Kollam district.

Method

Techniques

This study employed a descriptive and analytical research design. Quantitative methods were utilised to collect and analyse primary data through a structured questionnaire survey. Secondary data were gathered from journal articles, reports, and reliable online sources.

Sample

The sample consisted of 100 respondents, all young adults aged between 18 and 35 years, residing in Kollam district, Kerala. A stratified random sampling technique was employed to ensure adequate representation across different age groups and genders.

Tools/Measures

Primary data were collected using a structured questionnaire comprising both closed-ended and Likert scale-based questions. Key variables measured included:

- Cybercrime awareness (very well, aware, not so well, unaware),
- Cyber victimisation experience (never, once, 2–5 times, more than 5 times),
- Mental health outcomes (fear, sadness, anger, nightmares/flashbacks),
- Time spent on social media (hours per day).

Responses were coded numerically to facilitate statistical analysis.

Procedures

Data collection was conducted during September and October 2022. Respondents were briefed about the purpose of the study and consent was obtained. Confidentiality was assured. Data were analysed using percentage analysis, Pearson's correlation, and simple linear regression. Microsoft Excel was used for coding, tabulation, and preliminary statistical analysis.

Results

This section presents the findings based on the primary data collected from 100 young adults in Kollam district. The data were analysed using percentage analysis, Pearson's correlation, and simple linear regression to explore the relationships among cybercrime awareness, victimisation, and mental health outcomes.

Table 1: Age-wise Distribution of Respondents

Age Group	Respondents (%)
18–20 years	17%
21–33 years	70%
Above 33 years	13%

Source: Primary Data

The majority of respondents (70%) belonged to the 21–33 years age group, highlighting that young adults are the primary segment exposed to cyber environments.

Table 2: Awareness of Cybercrime Among Respondents

Awareness Level	Respondents (%)
Very well aware	37%
Know about it	46%
Not so well aware	12%
Do not know	5%

Source: Primary Data

A considerable portion of respondents were aware of cybercrime, though 17% reported limited or no awareness, indicating the need for sustained education efforts.

Table 3: Frequency of Cyber Victimisation

Victimisation Frequency	Respondents (%)
Never victimised	41%
Victimised once	29%
Victimised 2–5 times	16%
Victimised more than 5 times	11%

Source: Primary Data

While a majority had never been victimised, a significant portion of young adults reported cyber victimisation experiences.

Table 4: Opinion on Cyberspace Safety for Children

Opinion	Respondents (%)
Yes (safe)	15%
No (not safe)	85%

Source: Primary Data

Most respondents (85%) believed that cyberspace is unsafe for children, reflecting deep concerns about online security for minors.

Table 5: Impact of Cyberbullying on Mental Health

Opinion	Respondents (%)
Agree	74%
Neutral	20%
Disagree	6%

Source: Primary Data

A large majority agreed that cyberbullying significantly affects mental health, demonstrating awareness of its psychological impacts.

Table 6: Hours Spent on Social Media Daily

Time Spent	Respondents (%)
Always online	8%
1 hour	22%
2–3 hours	38%
More than 5 hours	32%

Source: Primary Data

A significant number of respondents (70%) reported spending more than 2 hours per day on social media, indicating heavy digital engagement.

Table 7: Advice for Victims of Cybercrime

Advice Given	Respondents (%)
Close or freeze affected account	9%
Register complaint with cyber cell	55%
Seek mental support	34%
Other	2%

Source: Primary Data

Registering a complaint with the cyber cell was the most recommended course of action by the respondents.

Source: Primary Data

Table 8: Strategies to Avoid Cyber Victimisation

Strategy	Respondents (%)
Do not click on spam links	52%
Use dual factor authentication	20%
Do not share passwords	19%
Use strong passwords	9%

Source: Primary Data

Avoiding suspicious links was the most commonly suggested preventive strategy among young adults.

Table 9: Correlation between Hours Spent on Social Media and Mental Health Outcomes

Variables	Correlation Coefficient (r)
Hours spent vs. Fear	+0.45
Hours spent vs. Anger	+0.32
Hours spent vs. Sadness	+0.38
Awareness Level vs. Victimisation	-0.41

Source: Primary Data

The correlation analysis demonstrates that hours spent on social media have a moderate positive association with psychological distress. The correlation coefficient between hours spent and feelings of fear was +0.45, indicating that increased online exposure is linked to heightened fear responses. Similarly, a positive correlation was found between hours spent and sadness (+0.38), as well as anger (+0.32). This suggests that prolonged social media usage may contribute to adverse mental health outcomes. In contrast, a moderate negative correlation (-0.41) was observed between cybercrime awareness and victimisation experiences. This result supports the hypothesis that individuals with higher cybercrime awareness are less likely to become victims of cyber-related incidents.

Table 10: Regression Analysis Predicting Mental Health Outcomes

Predictor Variable	Coefficient (^{2})
Number of Times Victimised	+0.52
Awareness Level	-0.35

Regression Equation : Mental Health Score = 2.1 + 0.52 (Victimisation Frequency) – 0.35 (Awareness Level)

Source: Primary Data

The simple linear regression analysis revealed that the number of times respondents had been victimised by cybercrime was a significant positive predictor of mental health distress (^{2} = +0.52). Each additional incident of victimisation increased the likelihood of experiencing negative mental health effects, including fear, sadness, and anxiety. Conversely, cybercrime awareness was found to be a significant negative predictor (^{2} = -0.35), indicating that higher levels of awareness are associated with better mental health outcomes. This suggests that awareness-building initiatives could act as protective interventions to mitigate the psychological harms associated with cybercrime. The overall regression model thus confirms that cyber victimisation aggravates mental health issues among young adults, whereas cybercrime awareness serves as a buffer reducing such negative effects.

Discussion

The present study aimed to investigate the relationship between cybercrime awareness, victimisation experiences, and mental health outcomes among young adults in Kollam district. The analysis of primary data collected from 100 respondents provided clear evidence of significant associations among these variables.

The first major finding of the study was that a large proportion of the respondents (70%) belonged to the 21–33 years age group, confirming that young adults form a digitally active and vulnerable segment of the population. Awareness regarding cybercrime was found to be moderately high, with 46% of respondents indicating that they had a general knowledge of cyber threats, and 37% stating that they were very well aware. However, a notable minority (17%) either had limited or no awareness, highlighting the ongoing need for focused awareness campaigns.

With regard to cyber victimisation, 41% of the respondents reported never having been victimised, whereas 29% had experienced cybercrime at least once. A smaller segment (16%) faced repeated victimisation (two to five times), and 11% experienced more than five incidents. This distribution shows that while many young adults remain unaffected, a significant portion repeatedly encounters cyber threats.

Correlation analysis revealed a moderate positive association between hours spent on social media and negative mental health indicators such as fear, sadness, and anger. Respondents who spent longer periods online reported experiencing more psychological distress. This trend highlights the psychological risks associated with prolonged and unregulated digital engagement.

Another important finding was the negative correlation between cybercrime awareness and victimisation. Those with higher levels of awareness were less likely to have been victimised, suggesting that awareness serves as an effective protective factor against cybercrime.

Regression analysis further confirmed these patterns. The number of times respondents were victimised was a significant positive predictor of adverse mental health outcomes, indicating that greater exposure to cyber threats substantially increases the likelihood of experiencing fear, sadness, or anxiety. In contrast, higher cyber awareness had a significant negative effect, reducing the probability and severity of mental health impacts.

Additional descriptive analysis revealed that the majority of respondents believed that cyberspace is not a safe environment for children (85%). Respondents strongly recommended interventions such as awareness programmes (50%) and parental monitoring of children's online activities (38%) to improve online safety. Furthermore, 74% agreed that cyberbullying significantly affects mental health, reinforcing the urgent need for targeted support mechanisms.

The survey also explored behaviours around social media use. Forty per cent of respondents reported spending 2–3 hours daily on social media platforms, and 32% spent over 5 hours. This heavy digital engagement further underlines the importance of promoting healthy online habits to prevent psychological harm.

In terms of strategies to avoid cyber victimisation, most respondents (52%) advocated avoiding

suspicious links, followed by the use of dual authentication systems (20%), avoiding password sharing (19%), and using strong passwords (9%). Advice for cybercrime victims centred on registering complaints with cyber cells (55%) and seeking mental health support (34%).

Overall, the study provides strong evidence that cyber awareness significantly contributes to reducing victimisation and protecting mental health among young adults. It also highlights that the intensity of social media usage and the frequency of cybercrime exposure are closely linked to adverse psychological outcomes. Addressing these challenges requires not only technical interventions but also psychological support frameworks integrated within public health and education policies.

Conclusion

The present study sought to examine the association between cybercrime awareness, cyber victimisation experiences, and mental health outcomes among young adults in Kollam district. The findings reveal that while a considerable proportion of young adults are aware of cybercrime threats, a significant number remains vulnerable due to either lack of awareness or unsafe online practices.

The analysis showed that increased exposure to cyber environments, particularly through prolonged social media usage, is moderately associated with emotional distress manifested as fear, sadness, and anger. Furthermore, the study confirmed that individuals with higher awareness levels were less likely to experience cyber victimisation, and that cybercrime exposure significantly predicted poorer mental health outcomes. These findings underline the dual role of cyber literacy: both as a protective shield against victimisation and as a buffer against psychological harm.

The study's implications extend beyond individual behaviour to the domain of public policy and community well-being. There is a pressing need for systematic awareness programmes targeted at young adults, focusing not only on technical cyber safety but also on building psychological resilience. Educational institutions, mental health professionals, and policymakers must collaborate to integrate cyber safety education within broader public health and development initiatives.

Although the study was limited to a specific geographical area and employed a cross-sectional design, it offers valuable insights into the emerging challenges posed by cybercrime to mental health. Future research could expand this enquiry across broader populations and explore interventions that combine legal literacy, technological skills, and mental health support.

In conclusion, addressing cybercrime cannot be separated from promoting mental health. A comprehensive approach combining awareness, prevention, legal regulation, and early psychological intervention is essential for safeguarding the well-being of digitally engaged youth in an increasingly interconnected world.

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Are Capital Flows A Fair - Weather Friend to Indian Economy - A Comparative Volatility Analysis

Jiji Vijayan

With the initiation of the Financial Liberalization process in the early 1990s, Indian Economy experienced a surge in Capital Flows especially Net Investment Flows. But Capital Flows especially Portfolio Flows are inherently volatile and dynamic and are affected by both domestic and global factors. The dynamism and reversibility of Capital Flows have macro-economic repercussions posing challenges on Exchange Rate and Money Supply Management. Analysing the dynamic aspects of the Net Capital Account Flows is a prerequisite to better manage the volatility and reversibility of Net Capital Flows.The Global Financial Crisis of 2007 is used for a comparative analysis of the dynamic volatility of Capital Flows between the Pre Crisis and Post Crisis Period.CapitalFlows are inherently unstable and experience dynamic volatility in the Post Liberalization era, but there is no significant volatility difference between the Pre and Post Crisis Periods, which is attributable to the limited Capital Account Convertibility and robust regulatory mechanism existing in Indian Economy.

Keywords: Net capital account flows, investment flows, volatility, post liberalization period, indian economy.

1. Introduction

The Net Capital Flows, especially Net Foreign Investment Flows to the Indian Economy, increased in volume with the liberalization of the financial sector and the gradual integration of the domestic financial sector to international markets. With the rise in the magnitude of heterogeneous flows, the challenge of management becomes complex, with the simultaneous management of the macro variables directly affected by the flows, especially exchange rates and money supply. Sudden reversals and surges in Capital Flows have macro-economic implications and directly affect Exchange Rate Management and Monetary Policy (Agarwal, 1997). In the globalized economy, the interaction of both domestic and global factors determines inflows and outflows, sometimes causing sudden surges and reversals. An analysis of the volatility of the components of the Balance of Payments is a prerequisite to understand and manage the relatively stable and volatile components of Net Capital Flows as there is a positive link between the stability of Capital Flows and Economic Growth. The Volatility analysis of the Net Capital Account Flows is a prerequisite to identify the relatively Stable and Volatile components of Net Capital Account Flows (Pal, 1998).

A distinction is made between Short Term/Speculative (Hot Money) and long Term (Cold) Flows. It is assumed that long term flows like Foreign Direct Investment Flows are stable and persistent and are reversible only when domestic fundamentals change, while Portfolio Investments are volatile (Chakraborty, 2016). The volatility of Net Capital Flows is relevant for Exchange Rate Management and Money Supply Policy as Capital Flow volatility directly affects Exchange Rate volatility in the case of Floating Exchange Rate and into changes in Official Reserves and money supply in the case of Fixed Exchange Rate. The volatility of certain kinds of Capital Flows in the Capital Account produces destabilizing and sudden changes in Total Capital and Balance of Payments Accounts also (Chakraborty, 2006).

Capital Flows experience a change in trend growth rates and experience significant Structural Breaks due to global and domestic factors. The Structural Breaks also pose a challenge in the management of Capital Flows and the macroeconomic variables directly affected by it (Chakrabarti, 2001).

This paper examines whether the volatility of Net Capital Account Flows and its components increased in the period after the Global Financial Crisis of 2007 and whether the distinction between Net Foreign Direct Investment / Long term flows and Net Portfolio Investment /Short term flows is relevant in terms of volatility for Indian Economy. It is hypothesized that the Net Capital Account Flows and its components experienced a significant increase in volatility in the period after the Global Financial crisis of 2007. It is further hypothesized that there is a significant difference in volatility between Net Foreign Direct Investment and Net Portfolio Investment in the Indian Economy in the Post Liberalization Period.

2. Methodology

For analysing the volatility of Capital Flows and its components, the static measure of Coefficient of Variation and dynamic measure of AutoCorrelation Functions are used.Coefficient of Variation is best suited for comparisons. One series is more volatile than another if the Coefficient of Variation of the former is higher than the latter. (Gabriele et al. 2000; Gupta et al. 2003; Osei et al. 2002).The AutoCorrelation Functions as a measure of volatility can be interpreted in an absolute sense (Claessens et al.2005).

The Mann - Whitney U test is performed to analyze whether the difference in volatility experienced between the Pre Crisis and Post Crisis Period for Net Capital Account Flows and its components is significant. The Mann-Whitney U test is a non-parametric test that can be used in place of an unpaired t-test. It is used to test the null hypothesis that two samples come from the same population, that is, have the same median or, alternatively, whether observations in one sample tend to be larger than observations in the other.

3. Data Source

The study of volatility employs Quarterly Balance of Payments data from 1990Q2 to 2020Q1 from the Hand Book of Statistics on the Indian Economy published annually by the Reserve Bank of India (RBI). The Global Financial Crisis of 2007 is taken as a benchmark to compare the volatility in the pre and post-crisis periods. Separate estimations are made for the entire period of study (1990Q2 to 2020Q1) and for the two sub periods, that is, Pre Global Financial Crisis Period (1990 Q2 to 2007Q3) and Post Global Financial Crisis Period (2007Q4 to 2020 Q1) to identify whether there is a significant difference in volatility in the two sub periods and among the components of Net Capital Account.

4. Stationarity Test

The Stationarity of Net Capital Account Flows and its components are examined to make the Non - Stationarity Time Series in the level, Stationary. The Stationary Series of Net Capital Account Flows and its Components are used for deriving the Auto Correlation Functions. Auto Correlation Functions are used for interpreting the volatility of Net Capital Account Flows and its Components in an absolute sense.

A given time series consists of three systematic components, including level, trend, seasonality, and one non-systematic component called noise. The level is the average value in the series. A Time-Series that exhibit constant Mean and Variance across time is a Stationary Time Series. A Stationary Time Series is Mean Reverting/Mean Cutting. A Non-Stationary Time Series exhibit upward or downward trends. Regression Analysis involving Non-Stationary Time Series lead to Spurious Regression. If a Non-Stationary Time Series is converted to a Stationary Time Series by differencing once, then the time series, $Y_{t,}$ is said to be integrated of order one. If a Time Series is differenced, ‘d’ times, then the Time Series is integrated of order, ‘d.’

Table 1.1: Result of Augmented Dickey-Fuller Test of Study Variables

Variables	Level		1st diff		2nd diff	
	t	Sig.	t	Sig.	T	Sig.
A Net Capital Account Flows	**-2.789**	**0.063**	**-17.061**	**0.000**		
A1.Net Foreign Investment	-0.353	0.912	-8.390	0.000		
A1.a.Net Foreign Direct Investment	1.150	0.998	-2.167	0.220	-12.495	0.000
A1.b.Net Portfolio Investment	-7.630	0.000				
A2.Net Loans	-4.563	0.000				
A2.a.Net External Assistance	-3.350	0.015				
A2.b.Net Commercial Borrowings	-5.608	0.000				
A2.c.Net Short Term Credit To India	-5.349	0.000				
A3.Banking Capital	-2.953	0.043				
A4.Rupee Debt Service	-1.382	0.589	-33.450	0.000		
A5.Other Capital	-2.623	0.092	-10.515	0.000		

Source: Authors' Calculation.

In statistics and econometrics, the Augmented Dickey-Fuller test (ADF) is applied to test the null hypothesis that a unit root is present in a time series sample. If the significance of the 't' statistic of the ADF test is less than 0.05, the Null Hypothesis of the presence of unit root is rejected. If the significance of the 't' statistic is greater than 0.05, the null hypothesis of the presence of unit root is accepted. For making the Non-Stationary Time Series Stationary, the Series is differenced once and again tested for the presence of Unit Root. The procedure is continued until the Time Series is made Stationary.

The Stationarity of the study variables is tested by the Augmented Dickey-Fuller Test. The result of the test is presented in Table 1.The Net Capital Account Flows are not Stationary at the level as the significance of the 't' statistic is greater than 0.05, and it becomes Stationary in its first difference as the significance of the 't' statistic is less than 0.05 in the first difference. Of the components of Net Capital Account, Net Loans and Banking Capital are Stationary in their level form. The other three components of Net Capital Account Flows, Net Foreign Investment, Rupee Debt Service, and Other Capital, are non-stationary in their level form and become Stationary in their first difference.

Contrary to conventional thinking, out of the two components of Net Foreign Investment, Net Portfolio Investment is Stationary in its level form. But Net Foreign Direct Investment becomes Stationary in its second difference only. All the components of Net Loans, namely, Net External Assistance, Net Commercial Borrowing, and Net Short-Term Credit to India, are Stationary in their level form.

1.5. Coefficient of Variation of Net Capital Account Flows

Table 1.2 provides the Coefficient of Variation (CV) of the Net Capital Account Flows and its components

Table 1.2 : Coefficient of Variation of the components of Net Capital Account from 1990 to 2020

Year		Net Capital Account Flows	Net Foreign Investment	Net Loans	Banking Capital	Rupee Debt Service	Other Capital
1990		0.349	1.079	0.376	1.706	-1.973	0.346
1991		0.827	2.000	0.419	-2.720	-1.055	0.593
1992		1.551	0.550	19.234	0.505	-0.910	-2.123
1993		0.492	0.871	2.052	0.666	-0.798	0.872
1994		0.548	0.369	0.945	2.077	-1.102	0.981
1995		1.180	0.141	1.947	18.033	-1.307	-2.200
1996		0.087	0.140	0.173	1.363	-1.310	-2.054
1997		0.554	0.172	0.628	-7.007	-1.537	7.050
1998		1.003	0.611	1.995	-4.335	-1.483	0.775
1999		0.343	0.242	0.857	0.715	-1.283	4.735
2000		0.476	0.444	1.455	-1.697	-1.468	1.662
2001		0.698	0.272	-1.021	0.901	-1.360	3.686
2002		0.585	0.604	-2.896	0.727	-1.394	26.675
2003		0.392	0.540	-2.248	0.672	-1.327	0.900
2004		0.847	0.631	1.673	2.077	-1.530	2.340
2005		0.659	0.325	1.681	1.480	-0.892	-2.472
2006		0.161	0.551	0.185	-72.232	-1.327	1.688
2007		0.359	0.495	0.049	1.721	-1.155	1.561
2008		1.631	1.469	0.919	4.042	-1.414	-7.520
2009		0.936	0.663	2.086	-34.324	-1.155	-1.745
2010		0.198	0.578	0.231	3.305	-1.414	-0.404
2011		0.516	0.506	0.496	2.606	-2.000	-6.147
2012		0.346	0.574	0.560	0.557	-1.200	-2.575
2013		0.917	0.738	1.008	1.456	-1.414	-1.023
2014		0.336	0.272	13.646	2.782	-1.277	-10.859
2015		0.556	0.669	-6.895	0.876	-0.816	7.396
2016		0.533	1.192	-23.139	-1.794	-0.766	1.339
2017		0.813	0.549	1.327	1.884	-1.064	-1.224
2018		0.344	0.265	1.231	1.432	-1.326	-1.832
2019		0.542	0.619	-2.777	0.213	-0.543	2.876
2020		0.533	1.194	-2.876	-1.639	-0.576	1.983
1990-2007		0.617	0.558	1.528	-3.075	-1.290	2.501
2008-2020		0.663	0.740	-1.232	-2.277	-1.273	-2.393
Mann Whitney Test	U	81.000	45.500	77.000	61.000	75.500	39.000
	Sig.	1.000	0.068	0.837	0.304	0.777	0.031
1990-2020		0.633	0.618	0.608	-2.809	-1.284	0.870
Friedman's Test	Chi-Square	29.815					
	Sig.	0.000					

Source: Authors' Calculation.

From the table, it can be seen that the Coefficient of Variation (CV) of Net Capital Account Flows in the Post Liberalization Period (1990-2020) was 0.633. The lowest value of C V was 0.087 recorded in 1996, and the highest value was 1.180 recorded in 1995. The Coefficient of Variation was more than 1 in 1992 (1.551), 1995 (1.180), 1998 (1.003), and 2008 (1.631). The increase in volatility might be because of the initiation of liberalization measures and the subsequent rise in net capital inflows in 1992, increased confidence in the domestic economy in the aftermath of Current Account Convertibility in 1995, East Asian Crisis in 1998 and the Global Financial Crisis in 2008.

A comparison of Coefficient of Variations of Net Capital Account Flows between Pre Global Financial Crisis Period (1990-2007) for which the CV was 0.617 and Post Global Financial Crisis Period (2008-2020) for which the CV was 0.663 did not reveal much difference in Coefficient of Variation values. It can be concluded from the CV values that the Global Financial Crisis of 2007 did not adversely affect the volatility of Net Capital Account Flows. The Mann Whitney U test confirms the conclusion. The null hypothesis that the Net Capital Account Flows experienced a significant increase in volatility in the aftermath of the Global Financial Crisis of 2007 is rejected as the significance of U is greater than 0.05.

The Coefficient of Variation of Net Foreign Investment Flows for the entire period of study (1990-2020) was 0.618. Even though the absolute value of the Coefficient of Variation is higher in the Post Global Financial Crisis period (0.740) compared to the Pre Global Financial Crisis period (0.558), the values are not significant when Mann Whitney U test was performed. The coefficient of variation of Net Foreign Investment Flows was highest in 1991 with a value of 2.000 and the lowest in 1996 (0.140). The coefficient of variation recorded more than one in 1990 (1.079), 2008 (1.469) 2016 (1.192) and 2020 (1.194).

The Coefficient of variation of Net Loans for the entire period of study was 0.608. A very high value of 19.234 is recorded in 1992, the period of Balance of Payments crisis. The coefficient of variation recorded negative values of -1.02, -2.896,-2.248 ,-6.895,-2.777 and -2.876 in 2001, 2002, 2003, 2015, 2019 and 2020 respectively signifying a net outflow from the net loan account. The highest absolute value of 23.139 is recorded in 2016. A comparison of absolute values of CV values of Net Loans for the Pre (1.528) and Post Global Financial Crisis periods (-1.232) did not signify a difference in volatility as the Mann Whitney Test confirmed, but in the pre-crisis period net loan inflows dominated but this was reversed in the Post Crisis period with net loan outflow overwhelmed inflows making the Coefficient of Variation negative.

The Coefficient of Variation of Banking Capital for the entire study period is -2.809, and the highest absolute value was recorded in 2006 (72.232) and the lowest value in 1992 (0.505). The CV for the pre-crisis period is -3.075 and for the post-crisis period is-2.277. The Mann whiney U test confirmed that there was no significant volatility variation between pre and post-crisis periods.

As Rupee Debt Service represented a net outflow from the Net Capital Account for every year of the entire study period, the Coefficient of Variation is negative for all years. As Rupee Debt Services account for only a small percentage of net capital, account, their volatility has little significance for the analysis. Mann Whitney U test confirmed that there was no significant volatility variation between pre and post-crisis periods.

Other Capital had the highest CV of 26.675 in 2002 and the lowest value of 0.346 in 1990.There was a significant volatility difference between Pre Crisis (2.501) and Post Crisis (-2.393), as indicated by the Mann Whitney U test. For the entire period of study, the CV was 0.870. Other Capital also accounted for only a small percentage of net capital account flows, and their volatility had little significance for the analysis.

From the analysis of Coefficient of Variation values of Net Capital Account Flows and its components, it was found that a significant volatility difference between the Pre and Post Global Financial Crisis periods was not experienced, except for Other Capital. But Friedman's two way ANOVA Test confirmed the significance of the difference in the coefficient of variation values among the different series of Net Capital Flows for the entire period of study as the significance of Chi-Square is less than 0.05.

1.5.1. Coefficient of Variation of the Components of Net Foreign Investment

Table 1.3 : Coefficient of Variation of the components of Net Foreign Investment from 1990 to 2020

Year		Net Foreign Direct Investment	Net Portfolio Investment
1990		1.732	-
1991		2.000	0.247
1992		0.286	1.216
1993		0.000	1.190
1994		0.313	0.458
1995		0.223	0.349
1996		0.225	0.315
1997		0.186	0.212
1998		0.402	-1.281
1999		0.240	0.414
2000		0.144	1.079
2001		0.247	0.948
2002		0.466	2.047
2003		0.287	0.719
2004		0.388	1.011
2005		0.224	0.506
2006		1.035	0.884
2007		0.385	0.557
2008		0.361	-0.559
2009		0.397	1.078
2010		0.399	0.686
2011		0.404	1.918
2012		0.815	0.894
2013		2.133	5.028
2014		0.889	0.253
2015		1.097	2.737
2016		0.891	-6.208
2017		0.143	0.235
2018		0.449	1.513
2019		0.027	-3.349
2020		0.843	-0.115
1990-2007		0.490	0.640
2008-2020		0.430	0.650
Mann Whitney Test	U	60.00	66.00
	Sig.	0.280	0.571
1990-2020		0.470	0.640
K S Test	Test Statistic	0.338	
	Sig	0.000	

Source:Authors' Calculation

The Coefficient of Variation of the Components of Net Foreign Investment is presented in Table 3. A comparison of Coefficient of Variation of Net Foreign Direct and Portfolio Investment revealed that for the entire study period, the coefficient of variation of Net Portfolio Investment (0.640) was significantly higher than Net Foreign Direct Investment (0.470) as confirmed by K- S Test. The null hypothesis that the distinction of long term flows/FDI and short term flows/NPI is relevant in terms of volatility for the Indian Economy is accepted as there is significant volatility difference between Net Foreign Direct Investment and Net Portfolio Investment for the entire period of study. But there is no significant volatility difference between the Pre-Crisis and Post Crisis Period for both Net Foreign Direct and Portfolio Investments. For Net Foreign Direct Investment, the CV in the Pre-Crisis period was 0.490, and the post-crisis period was 0.430, and the values are not significant as Mann Whitney Test revealed. Similarly, for the Net Portfolio Investment in the Pre Crisis period, the CV value was 0.640, and for the Post Crisis period, a higher value of 0.650 was observed. But the pre and post-crisis volatility difference is not significant. The coefficient of variation of Net Foreign Direct Investment recorded the highest value of 2.333 in 2013, and the second-highest value of 2.000 in 1991. The coefficient of variation was 1.035 in 2006 and 1.097 in 2015. For all the remaining years of the study period, the value of the coefficient of variation was less than 1.00. The coefficient of variation of Net Portfolio investment recorded the highest absolute value of -6.208 in 2016 and the second-highest value of 5.028 in 2013.

1.5.2. Coefficient of Variation of the Components of Net Loans

Table 1.4 : Coefficient of Variation of the components of Net Loans from 1990 to 2020

Year	Net External Assistance	Net Commercial Borrowings	Net Short Term Credit to India
1990	0.795	0.400	0.726
1991	0.300	0.885	-94.113
1992	1.113	3.295	-0.773
1993	1.642	-12.490	2.965
1994	1.398	0.744	-2.148
1995	3.383	2.476	1.332
1996	1.458	0.203	15.706
1997	1.139	1.473	2.204
1998	1.362	1.864	-0.751
1999	0.933	3.868	0.696
2000	4.736	2.121	2.218
2001	1.609	-0.891	-0.431
2002	6.587	-0.856	1.579
2003	-1.103	-2.043	0.498
2004	-8.083	0.728	2.310
2005	0.844	12.686	0.683
2006	0.664	0.312	0.810
2007	0.466	0.214	0.602
2008	0.528	0.558	3.498
2009	0.397	1.066	30.750
2010	0.616	0.858	0.320
2011	0.780	0.881	0.486
2012	0.825	0.641	0.724

2013	2.133		0.635	3.563
2014	0.889		1.773	-1.088
2015	1.097		-3.659	-4.986
2016	0.891		-0.215	1.373
2017	1.123		0.665	3.785
2018	0.889		1.344	-1.765
2019	0.047		-3.879	-2.926
2020	0.321		-0.456	1.734
1990-2007	1.07		0.83	-3.66
2008-2020	0.91		0.28	3.85
Mann Whitney	U	59.00	72.00	76.00
	Sig	0.258	0.643	0.797
1990Q2-2020	1.01		0.65	-1.16
Friedman Test	Chi-Square		1.185	
	Sig		0.553	

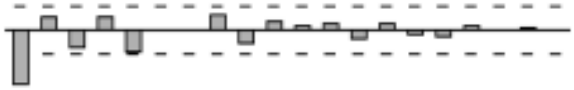
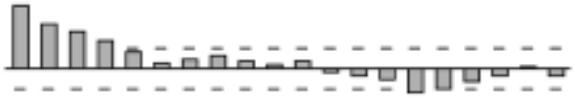
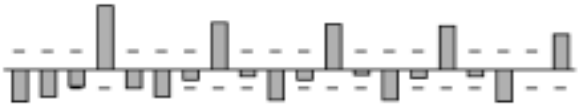
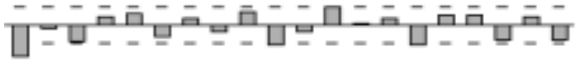
Source: Authors' Calculation.

The Coefficient of Variation of the components of Net Loans is presented in Table 4.Net External Assistance recorded the highest absolute CV value of 8.083 in 2004, and the lowest value of 0.300 in 1991.Net Commercial Borrowings recorded the highest absolute C V of 12.686 in 2005 and the lowest value of 0.203 in 1996. The Net Short Term Credit to India recorded the highest absolute C V value 94.113 in 1991 and the lowest CV of 0.320 in 2010. In the case of the CV of the components of Net Loans, there is no significant volatility difference between the Pre Crisis and Post Crisis Periods for Net External Assistance, Net Commercial Borrowings, and Rupee Debt Service as the Mann Whitney test indicated. The significance of Friedman's ANOVA test statistic suggested that there was no significant volatility difference among the three series for the entire study period.

1.6. Autocorrelation Functions of Net Capital Account Flows

Another measure employed for analyzing the volatility of Net Capital Account Flows and its Components is Autocorrelation Functions, which can be interpreted in the absolute sense. This method is suggested by Claessens et al. (1995). The study contend that Hot Money Flows have low persistence and high volatility. Conversely, Cold Flows have high persistence and low volatility. Analyzing in terms of the time-series properties of different kinds of flows, a Persistent or Stable series exhibit Positive Autocorrelation, that is, cold money flows will be highly positively correlated. Alternatively, Transitory Series or Hot Money Flows have low, zero, or negative Autocorrelation.

The Autocorrelation functions of Net Capital Account and its components are presented in Figure 1. For the entire study period, the Net Capital Account Flows series exhibit no significant positive autocorrelation. The Autocorrelation Functions of the components of Net Capital Account exhibit the following features. For the entire period of study, Net Foreign Investment exhibited zero or negative autocorrelation. But the Net Loan component of Net Capital Account exhibited significant Positive Autocorrelation for short horizons. Banking Capital, Rupee Debt Services, and Other Capital exhibited zero or negative autocorrelation. The most stable component among the Net Capital Account Flows is Net Loans. (See figure 1.1 below)

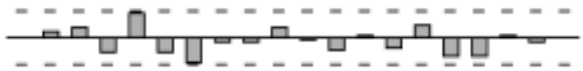
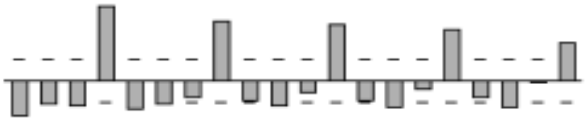
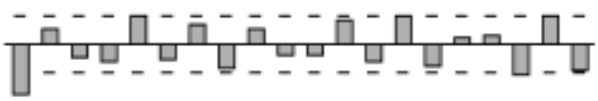
Variables	1990Q2-2020Q1
Net Capital Account	
Net Foreign Investment	
Net Loans	
Banking Capital	
Rupee Debt Service	
Other Capital	

Lags (Quarters)

Figure 1.1 Autocorrelation Functions of the components of Net Capital Account from 1990Q2 to 2020Q1

The Autocorrelation functions of Net Capital Account and its components for the Pre Global Financial Crisis Period (1990Q2 -2007 Q3) are presented in Figure 2. For the Pre Crisis Period, Net Capital Account Flows, Net Foreign Investment, Banking Capital, and Other Capital exhibited a significant negative Autocorrelation. The Loans experienced a significant Positive Autocorrelation for the Pre Crisis Period. The time series Autocorrelation Function Plots of Rupee Debt Service shows a very high positive Autocorrelation for some horizons, but the signs change from quarter to quarter.

Figure 1.2

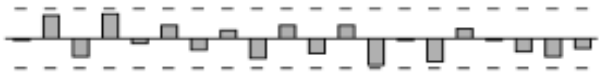
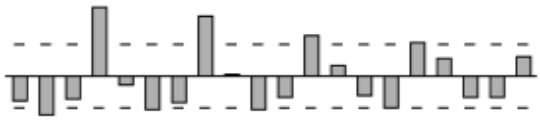
Variables	1990Q2-2007Q3
Net Capital Account	
Net Foreign Investment	
Net Loans	
Banking Capital	
Rupee Debt Service	
Other Capital	

Lags (Quarters)

Figure 1.2 Autocorrelation Functions of the components of Net Capital Account from 1990Q2 to 2007 Q3

The Autocorrelation functions of Net Capital Account and its components for the Post Global Financial Crisis Period (2007 Q4 -2020 Q1) are presented in Figure 3. For the Post Crisis Period also similar results to Pre Crisis Period emerge. The Net Capital Account Flows, Net Foreign Investment, Banking Capital, and Other Capital exhibited a significant low, or zero or negative Autocorrelation. The Net Loans experienced a significant Positive Autocorrelation for the first horizon only. The time series Autocorrelation Function Plots of Rupee Debt Service shows a significant positive Autocorrelation for some horizons, but the signs change from quarter to quarter.

Figure 1.3

Variables	2007 Q4-2020Q1
Net Capital Account	
Net Foreign Investment	
Net Loans	
Banking Capital	
Rupee Debt Service	
Other Capital	

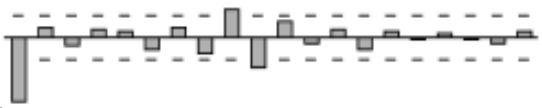
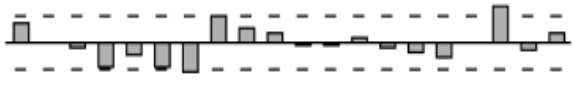
Lags (Quarters)

Figure 1.3 Autocorrelation Functions of the components of Net Capital Account from 2007 Q4 to 2020 Q1

1.6.1. Autocorrelation Functions of the Components of Net Foreign Investment

The Autocorrelation Functions of Net Foreign Direct and Portfolio Investments for the entire period of study (1990Q2 -2020 Q1) are presented in Figure 4. The Net Foreign Direct Investment and Net Portfolio Investment exhibited a significant zero or negative Autocorrelation.

Figure 1.4

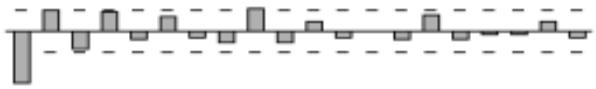
Variables	1990Q2 -2020 Q1
Net Foreign Direct Investment	
Net Portfolio Investment	

Lags (Quarters)

Figure 1.4 Autocorrelations Functions of the components of Net Foreign Investment from 1990Q2 to2020Q1

The Autocorrelation Functions of Net Foreign Direct and Portfolio Investments for the Pre Crisis Period (1990Q2 -2007 Q3) are presented in Figure 5. The Net Foreign Direct Investment and Net Portfolio Investment exhibited a significant zero or negative Autocorrelation for the Pre Crisis Period.

Figure 1.5

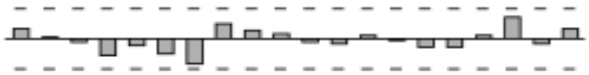
Variables	1990Q2-2007 Q3
Net Foreign Direct Investment	
Net Portfolio Investment	

Lags (Quarters)

Figure 1.5 Autocorrelations Functions of the components of Net Foreign Investment from1990Q2 to 2007 Q3

The Autocorrelation Functions of Net Foreign Direct and Portfolio Investments for the Post Crisis Period (2007 Q4 -2020 Q1) are presented in Figure 6. For the Post Global Financial Period, also the Net Foreign Direct Investment and Net Portfolio Investment exhibited a significant zero or negative Autocorrelation. The unstable nature of the direct and portfolio investment flows is not unique to any particular study period.

Figure 1.6

Variables	2007 Q4-2020Q1
Net Foreign Direct Investment	
Net Portfolio Investment	

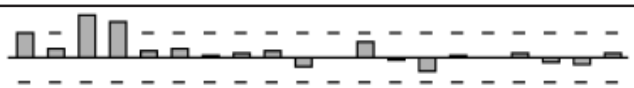
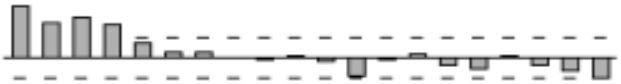
Lags (Quarters)

Figure 1.6 Autocorrelations Functions of the components of Net Foreign Investment from 2007Q4 to 2020 Q1

1.6.2. Auto Correlation Functions of the Components of Net Loans

The Autocorrelation Functions of the components of Net Loans for the entire study period (1990 Q2 to 2020 Q1) are presented in Figure 7. The components of Net Loans that are Net Commercial Borrowings and Net Short Term Credit to India exhibited a significant positive autocorrelation for the entire study period for short horizons. But Net External Assistance exhibited no significant positive Autocorrelation for the entire study period.

Figure 1.7

Variables	1990Q2-2020 Q1
Net External Assistance	
Net Commercial Borrowings	
Net Short Term Credit to India	

Lags (Quarters)

Figure 1.7 Autocorrelation Functions of the components of Net Loans from1990 Q2 to2020 Q1

The Autocorrelation Functions of the components of Net Loans for the Pre Crisis Period (1990 Q2 to 2007 Q3) are presented in Figure 8. The components of Net Loans exhibited no significant positive autocorrelation for the pre-crisis period.

Figure 1.8

Variables	1990Q2 -2007 Q3
Net External Assistance	
Net Commercial Borrowings	
Net Short Term Credit to India	

Lags (Quarters)

Figure 1.8 Autocorrelation Functions of the components of Net Loans from 1990 Q2 to 2007 Q3

The Autocorrelation Functions of the components of Net Loans for the Post Crisis Period (2007 Q4 to 2020 Q1) are presented in Figure 9. From the figure, it can be seen that in the post-global financial crisis period, only Net External Assistance exhibited zero or negative autocorrelation. But Net Commercial Borrowings and Net Short Term Credit to India exhibited a significant positive autocorrelation for very short horizons.

Figure 1.9

Variables	2007 Q4 -2020Q1
Net External Assistance	
Net Commercial Borrowings	
Net Short Term Credit to India	

Lags (Quarters)

Figure 1.9 Autocorrelation Functions of the components of Net Loans from 2007 Q4 to 2020 Q1

11. Conclusion

From the analysis, it has been found that Net Capital Flows to the Indian Economy are volatile in the post-liberalization period and that there is no significant difference in volatilities in Pre and Post Crisis periods. Unlike the flow of real goods and services, the Capital Flows are volatile because of the inherent nature of financial flows trying to seek higher returns across the globe. In the case of the Indian economy, capital flows are volatile, and the increased volatility is not confined to the Post Crisis Period but for Pre Crisis Period also. From the analysis of volatility, it can be concluded that the Global Financial Crisis of 2007 did not have a significant impact on Capital Flow volatility. Indian Economy so far did not experience any sudden surges and reversals of capital flows like other Emerging Market Economies, indicating the increased resilience, strength, and robust regulatory system in place. This suggests that capital flows are not a fair-weather friend to the Indian Economy and the resilience of the economy to withstand crisis because of the robust regulatory framework and monitoring system in place. Coupled with this are India's cautious and gradualist approach to liberalization, the existence of soft capital controls, and limited capital account convertibility. The coefficient of variation values shows that Mann-Whitney U statistic values are not significant for pre and post-crisis periods for Net Capital Account Flows. The post-crisis period is characterized by more caution and even a slowdown in the pace of liberalization process compared to the pre-crisis period. The distinction of long-term flows and short-term flows is relevant for the Indian

Economy as there is significant volatility difference between Net Foreign Direct Investment and Net Portfolio Investment for the entire period of study. The reversible nature of Net Portfolio Investment Flows is still a cause of concern.

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From the Plague of Athens to COVID-19: How Disease Shaped Political History Across Ages

Jyothi V. &
M.A. Lal

Pandemics have profoundly shaped human history, influencing societies, economies, and cultures. From ancient outbreaks like the Plague of Athens (430 B.C.) and the Antonine Plague (165 A.D.) to modern crises such as COVID-19, each pandemic has brought unique challenges and lessons. The Cyprian Plague (250 A.D.) and Justinian Plague (541 A.D.) devastated ancient civilizations, while the Black Death in the 14th century reshaped medieval Europe. The Columbian Exchange introduced Old World diseases to the Americas, with catastrophic effects on indigenous populations. Subsequent centuries saw waves of pandemics, including cholera (1817), the Russian Flu (1889), and the Spanish Flu (1918), which collectively claimed millions of lives. In the 20th century, outbreaks like the Asian flu (1957) and HIV/AIDS (1981) highlighted evolving global vulnerabilities. More recently, the SARS (2003) epidemic and the COVID-19 pandemic underscored the necessity for robust public health systems, rapid scientific innovation, and international cooperation. This article chronologically explores pandemics throughout history, highlighting their profound impact on human societies and underscoring the urgent need for preparedness to address future global health crises.

Keywords : Pandemics, black death, COVID-19, spanish flu, global health, societal impact, resilience.

Introduction

Pandemics are pivotal moments in human history, leaving indelible marks on society, culture, economy, and politics. From the devastation of the Black Death in the 14th century to the global upheaval of COVID-19 in the 21st century, humanity's encounters with pandemics reveal resilience, adaptation, and transformation patterns. Infectious diseases have existed since the hunter-gatherer era of humanity, but the transition to agricultural societies around 10,000 years ago laid the foundation for widespread epidemics. The establishment of migratory societies helped fuel the rise of diseases such as malaria, tuberculosis, leprosy, influenza, and smallpox. As humans advanced, they built cities, established trade routes, and occasionally engaged in war epidemics. When an outbreak affects large geographic areas, it becomes an epidemic. A pandemic is an epidemic that spreads globally, spanning multiple countries or continents (Piret & Boivin, 2021).

Throughout human history, disease has been more than a biological event. It has been a powerful force shaping the course of civilizations, economies, and political systems. From the devastating Plague of Athens in 430 BCE to the global upheaval triggered by COVID-19, pandemics have tested the resilience of societies and the legitimacy of their leaders. Far beyond their immediate toll on health, pandemics have served as turning points in history, exposing the strengths and weaknesses of political institutions, altering power dynamics, and influencing the development of laws, governance structures, and international relations. This article traces the complex and often overlooked political journey of disease through the ages. It examines how rulers, governments, and empires have responded to outbreaks not only in terms of public health but also through strategies of control, surveillance, and policy reform. By exploring how pandemics have shaped and been shaped by political agendas, a deeper understanding of how disease functions as both a medical crisis and a political event can be gained. In doing so, this narrative underscores the enduring entanglement

between pathogens and power, reminding that the response to health crises is never purely scientific, it is also inherently political.

Chronological Order of Pandemics

430 BC: The Plague of Athens

In 430 BC, Athens, under siege by Sparta during the Peloponnesian War (431-404 BC), was struck by a devastating plague. Over the next three years, the disease affected most of the population, claiming the lives of an estimated 75,000 to 100,000. Thucydides, an Athenian general and historian, provided a detailed eyewitness account of the plague, intending to help future generations recognize it if it reappeared. The Plague of Athens holds a prominent place in Western history and culture, both because of its importance to Athens and because of Thucydides' historical contributions. Despite his meticulous descriptions, scholars and physicians have debated the identity of the disease over the past century. Two main theories are based on clinical symptoms such as pustular rash, high fever, diarrhea, smallpox, and typhus. The epidemic, believed to have originated in Ethiopia, spread throughout the Mediterranean, sparing no social class and even claiming lives. The outbreak began in early May 430 BC, with subsequent waves occurring in the summer of 428 BC and the winter of 427-426 BC, lasting a total of 4.5 to 5 years (Littman, 2009).

165 A.D.: The Antonine Plague

The Antonine Plague, the first outbreak of smallpox, is believed to have originated with the Huns (The Huns were nomadic warriors who dominated and instilled fear in much of Europe and the Roman Empire during the 4th and 5th centuries AD.). They passed it on to the Germans, who then infected the Romans. Returning Roman troops then spread the disease throughout the Roman Empire, helping to spread it widely (History.com.Editors, 2021). The first phase of the outbreak lasted until 180 CE, affecting the entire Roman Empire, while a second wave occurred between 251 and 266 CE, increasing the impact of the previous epidemic. Some historians consider this plague a pivotal event, marking the beginning of the decline of the Western Roman Empire and laying the foundation for its fall. The Greek physician and author of *"Methods Medendi"*, Galen (129-c. 216 CE), witnessed the outbreak and documented its symptoms and progression. Common symptoms included fever, diarrhea, vomiting, severe thirst, sore throat, and cough. Galen specifically noted that the diarrhea was black, indicating bleeding in the gastrointestinal tract. The cough was accompanied by foul-smelling breath, and the illness caused an exanthema a widespread skin eruption or rash characterized by red and black papules. The illness usually lasted two weeks, and although not all infected individuals succumbed to the disease, those who survived developed immunity to future outbreaks. Based on Galen's detailed observations, modern researchers have concluded that the disease that destroyed the empire was likely smallpox (Horgan, 2019).

250 A.D: Cyprian Plague

The Plague of Cyprian began in Ethiopia at Easter 250 CE, reached Rome the following year, and eventually spread to Greece and eastward into Syria. The epidemic lasted for about 20 years, and at its peak, it was reported to be claiming as many as 5,000 lives a day in Rome. Its rapid spread was exacerbated by the constant wars that gripped the empire, including Germanic invasions of Gaul and Parthian attacks in Mesopotamia. Periods of drought, floods, and famine, along with political instability within the empire, weakened the population, compounding the crisis.Saint Cyprian (200-258 CE), bishop of Carthage, vividly described the outbreak, likening the devastation to the end of the world. The plague was named after him because his detailed description in his book *"De Mortalitate" ("On Mortality")* remains a major source of knowledge about the crisis. Cyprian describes the symptoms as severe diarrhea, persistent vomiting, fever, deafness, blindness, paralysis of the legs and feet, swollen throat, conjunctival hemorrhage, and bleeding from the eyes and mouth. Death was often the result. At the time, pagans interpreted the plague as divine punishment, a belief that predates Christianity and was common in the early Christian Mediterranean, and the disease was often attributed to supernatural causes. Over time, scholars have sought more scientific

explanations. Identifying ancient diseases is challenging due to the limited medical knowledge of the time, but surviving accounts suggest that the illness was highly contagious, spreading through direct and indirect contact, including through contaminated clothing.Various hypotheses have been proposed over the centuries about the nature of diseases including bubonic plague, typhus, cholera, smallpox, measles, and anthrax. However, in the case of bubonic plague, the absence of some key symptoms - such as buboes - has eliminated many possibilities. The range of symptoms described suggests a combination of conditions including meningitis and acute bacillary dysentery (Horgan, Plague of Cyprian, 250-270 CE, 2016)

541 A.D.: Justinian Plague

The Plague of Justinian, caused by "Yersinia pestis", was a devastating epidemic that began in the mid-6th century CE. Its origins are debated, with theories pointing to Ethiopia, Egypt, or the Central Asian steppes, where the disease spread along caravan trade routes. The disease spread throughout the Roman Empire. The Plague of Justinian, described by Procopius, John of Ephesus, and Evagrius, was well-documented. Symptoms included fever, fatigue, and swollen blisters in the groin, armpits, or near the ears. Patients often experienced hallucinations, delirium, and lethargy before succumbing to death within days. Some victims suffered from gangrenous buboes, vomiting blood, or insanity. In rare cases, ruptured blisters allowed recovery, although survivors often suffered physical consequences such as withered limbs and tongues. Emperor Justinian himself contracted the plague but survived. The pandemic overwhelmed burial practices, with bodies being dumped in mass graves and overflowing pits, abandoned in the streets, or piled on the beach, causing widespread stench in cities. Social and economic systems collapsed - trade ceased, food supplies dwindled, and starvation added to the death toll. In Constantinople, population losses exceeded 50%, while the Byzantine Empire as a whole may have lost 40% of its population by 600 CE. The Byzantine army was severely affected, struggling to recruit troops and sustain campaigns, including a failed attempt to retake Rome. Economic output plummeted, the tax base shrank, and huge financial burdens were imposed on survivors. Repeated outbreaks established cycles of infection, and the devastating effects of the plague were felt in 541 AD (Huremoviæ, 2019). In contrast, organized barbarian communities outside Rome's borders remained largely unaffected by the plague. The disease's high mortality rate likely played a role in weakening the Byzantine Empire, contributing to its eventual decline. Following the initial epidemic, sporadic plague outbreaks recurred every 8 to 12 years for two centuries before vanishing for reasons that remain unclear (Piret & Boivin, 2021).

11th Century: Leprosy

Leprosy, also known as Hansen's disease, is one of the oldest known infectious diseases, having afflicted humanity since ancient times. Exploring its historical aspects sheds light on the enduring social stigma associated with the disease, revealing how those affected were subjected to inhumane treatment for centuries, and how medical approaches have evolved over time. For much of history, leprosy was considered a divine punishment. Caused by the *bacillus "Mycobacterium leprae"*, the disease primarily affects the skin and nerves, leading to serious physical disabilities. Its visible deformities and neurological disorders fostered fear, prejudice, and discrimination, pushing sufferers into isolation, poverty, and loneliness. During the Middle Ages, leprosy became a widespread epidemic throughout Europe, prompting the construction of numerous leprosy-specific hospitals to care for the growing number of affected individuals. The slow progression of the disease, marked by sores and deformities, reinforced the belief that it was hereditary and a moral failing, and further stigmatized its victims. Today, Hansen's disease affects tens of thousands of people each year. Although treatable with antibiotics, it can be fatal if left untreated, underscoring the importance of addressing the medical and social dimensions of this age-old affliction (Luigi Santacroce, 2021).

The Black Death a Turning Point

The Black Death, a global outbreak of bubonic plague, originated in China in 1334 and reached Europe via the Silk Road in 1347. By 1400, this devastating pandemic had reduced the global population from 450

million to less than 350 million and probably even more. It claimed between 300 million and 150 million lives. Some estimates suggest that the plague wiped out up to 60% of Europe's population at its peak. Starting in China, the disease spread through Central Asia and northern India before reaching Sicily in 1347. Within five years, it had spread to Russia and the Middle East. The initial wave alone caused 25 million deaths.The mortality rate of untreated bubonic plague was about 70% within eight days, while untreated pneumonic plague was more deadly, with a mortality rate approaching 95%. However, with the advent of antibiotics, the mortality rate dropped to around 11%.To combat the spread of the plague, medieval societies turned to quarantine, inspired by ancient practices of isolating individuals to prevent contagion. Observing that individuals who remained asymptomatic for some time were unlikely to contract or transmit the disease, they began to enforce mandatory isolation. The first recorded quarantine was established in Ragusa (present-day Dubrovnik) in 1377. All arrivals were required to spend 30 days on the nearby island of Lokrum before entering the city. This initial 30-day period *(trentine)* was later extended to 40 days, giving rise to the term *"quarantine" (quaranta giorni).* Quarantine was one of the few measures that was effective during the Black Death, and it quickly became a common practice throughout Europe. It remains an important and controlled public health strategy for combating infectious diseases today (Huremoviæ, 2019).

1492: The Columbian Exchange

The arrival of the Spanish in the Caribbean introduced devastating diseases such as smallpox, measles, and bubonic plague to indigenous peoples. Due to lack of prior exposure and lack of immunity, indigenous communities suffered devastating losses, with up to 90% of the population dying in North and South America. When Christopher Columbus landed on the island of Hispaniola, the Taíno population is estimated to have been around 60,000. By 1548, it had dwindled to fewer than 500. This devastating pattern was repeated throughout the Americas. In 1520, the Aztec Empire succumbed to a smallpox epidemic. The disease not only killed a significant portion of the population, but also crippled the survivors, making the society vulnerable to Spanish colonization. It also disrupted agriculture, as farmers were unable to produce essential crops (History, 2019).

1665: The Great Plague of London

The 1665 outbreak was the deadliest plague to strike England since the Black Death of 1348. In London alone, it claimed the lives of 15% of the population. While official records report 68,596 deaths in the city, the true toll may have surpassed 100,000.There were also significant losses in other parts of the country. The first cases emerged in the spring of 1665 in St Giles-in-the-Fields, a parish outside London's city walls. The death toll increased during the hot summer months, and 7,165 Londoners died in a single week in September. The plague was spread by fleas carried by rats in the dirty, filth-filled streets, especially in poorer areas. Most doctors, lawyers, and merchants, including those with the means to escape, left the city. King Charles II and his court moved to Hampton Court in July, and then to Oxford. Parliament was suspended due to the severity of the outbreak and reconvened at Oxford in October. Legal proceedings were also moved from Westminster to Oxford. Despite the exodus, the Lord Mayor and Aldermen remained in London, enforcing royal orders to prevent the spread of the disease. The city's poorest residents were left behind, suffering the plague alongside rats. Infected houses were locked up and watchmen were posted, and parish officials brought food to the crowds. Searchers collected the dead and buried them in plague pits under cover of night.To contain the outbreak, trade with London and other affected cities was suspended. The Scottish Council closed the border with England, and fairs and trade with foreign countries were banned. This widespread disruption cost many people their livelihoods, increasing the economic and social toll of the plague (Great Plague of 1665-1666 How did London respond to it?). King Charles II and his court fled London in the early summer of 1665, not returning until February of the following year. During this time, Parliament held a brief session at Oxford. By December 1665, the death rate had fallen sharply and continued to fall throughout the winter and early 1666, with relatively few deaths recorded that year. Although the disease spread widely from London throughout the country, no major epidemics occurred after 1667, although

occasional cases continued to appear in death records until 1679. Although the Great Fire of London in September 1666 has been suggested as the cause of the disappearance of the plague in the capital, the disease also declined in other cities without experiencing such a catastrophe. Some point to the lack of quarantine measures as a reason, but effective quarantine was not implemented until 1720. Most scholars agree that the cessation of the plague in England was a natural event rather than the result of any specific intervention (Morrill).

1817: First Cholera Pandemic

Vibrio cholerae is a waterborne pathogen that infects humans through contaminated water used for drinking or food preparation. The infection is often mild or asymptomatic, with the bacteria typically excreted in feces within one to two weeks. However, *V. cholerae* can persist indefinitely in aquatic reservoirs, where it may acquire mobile genetic elements through horizontal gene transfer, potentially leading to the emergence of new toxigenic clones. Cholera remained endemic in Asia until the first epidemic spread from India to various regions around the world in 1817. This outbreak coincided with an era of growing globalization driven by advances in transportation technology. The advent of steamships and railways greatly reduced travel times and increased trade, which facilitated the spread of the disease. Health prevention measures at the time mirrored those used during the Black Death. Infected individuals were isolated in lazarettos, ships arriving from cholera-affected areas were denied port entry, and passengers who had come into contact with infected people or had come from cholera-affected areas were quarantined (Piret & Boivin, 2021).

Cholera has a special significance in social history. Its nature, mode of transmission, and strong association with unsanitary living conditions and contaminated water supplies disproportionately affected the lower classes, making it a lens through which to examine class structures, social attitudes, and the living conditions of large segments of the population. Most studies have focused on urban centers, using cholera as a means of analyzing demographic trends and social responses in cities such as New York, London, Paris, Lille, Lyon, Bordeaux, and Marseilles. Although little research has been conducted on non-urban settings, the available material provides insights into the experiences of regions such as Mexico, Canada, and Russia. Beyond a static social analysis, it is essential to recognize that cholera outbreaks in Europe occurred during periods of social unrest and upheaval. The impact of the epidemic heightened tensions, contributing significantly to the revolutionary movements and social unrest of the time (McGrew, 1960).

1817: Smallpox and Colonial Conquests

During the age of exploration, smallpox played a significant role in shaping the global order. The introduction of the virus to the Americas led to catastrophic population declines (McGREW) among Indigenous peoples, weakening their resistance to European colonization. Smallpox emerged in densely populated areas such as the Nile and Ganges river valleys, with evidence of its presence in Egyptian mummies as early as 1200-1100 BC. By the Christian era, it had become endemic in these areas and had spread to other parts of the world through trade, conquest, and migration. By the 4th century AD, smallpox had reached China and Japan, and by the 6th century, smallpox had spread too many parts of Eurasia and Africa. The disease had a profound impact on culture and religion, inspiring deities such as Sitala in India and Sopona in Africa, as well as early medical practices such as variolation, an early form of vaccination. Large epidemics devastated unexposed populations, while occasional outbreaks in localized areas affected mainly children due to adult immunity. With the advent of Edward Jenner's vaccination in the 18th century, efforts to control smallpox gained momentum, and colonial powers launched vaccination campaigns. Despite these measures, smallpox caused great social and demographic upheaval, leaving scars on populations that persisted until its eradication efforts in the 20th century (*9241561106_chp5.Pdf*, n.d.).

1875: Fiji Measles Pandemic

The introduction of measles to Fiji in January 1875, shortly after it came under British colonial rule, led to a devastating epidemic that devastated the indigenous population. Chief Takombau contracted the

disease while in Sydney, Australia. Despite the successful treatment of early cases on board ships, infected individuals came into contact with visitors when they disembarked and the disease spread rapidly. By February, measles had become an epidemic, severely affecting villages where entire populations were infected at once. This led to deaths from starvation and exhaustion, as resources were plentiful but food could not be prepared or stored. The mortality rate was staggering, with census data revealing significant losses: approximately one-quarter to one-fifth of the Indigenous population, with over 20,000 deaths in four months. Environmental factors such as tropical rains, poor ventilation, crowded living conditions, and inadequate care exacerbated the crisis. Many patients, suffocating from fear, were either isolated in poorly ventilated huts or sought solace in the water, worsening their condition.The epidemic ended only when almost every person in Fiji had been infected. Comparisons were drawn to similar outbreaks in remote and isolated populations such as the Faroe Islands and among soldiers during the American Civil War (*On Measles in Fiji*, n.d.).

1889: Russian Flu

The Russian flu pandemic, often considered the first modern pandemic due to the statistics collected, spread rapidly from its origin in Turkestan in 1889 to Europe, the Americas, Asia, and Africa, taking advantage of the interconnected transportation systems of the industrial era. In four waves, influenza demonstrated high transmissibility, infecting approximately 60% of the urban population and causing about one million deaths globally (0.1–0.28%). Unlike typical influenza pandemics, the Russian flu was characterized by specific symptoms, including neuralgic pain, gastrointestinal problems, and mental manifestations such as depression and prostration. Many cases saw recurrences and long-term health effects. The elderly were most affected, in a departure from the patterns of later flu pandemics. Historical treatments, including quinine, strychnine, and phenol inhalation, were rudimentary and ineffective. The cause of the Russian flu remains a mystery. Initially attributed to" *"Myxovirus influenza"*, recent studies suggest a coronavirus may have caused it. Genomic analysis links the human coronavirus HCoV-OC43, which diverged from a bovine coronavirus in 1890, to the pandemic. This hypothesis is supported by similarities between the symptoms of the Russian flu and COVID-19, which include respiratory, neurological, and multi-system involvement. The pandemic exemplifies how zoonotic pathogens exploit human activity and globalization, and raises questions about the evolution of viruses and their role in historical pandemics. Further research may clarify whether the Russian flu was an early coronavirus pandemic (Berche, 2022).

1918: Spanish Flu

The Spanish flu pandemic of the early 20th century was the first truly global pandemic to occur when modern medical disciplines such as epidemiology and infectious diseases began to systematically study diseases. It remains the last global pandemic to have such devastating effects worldwide. The pandemic was caused by the H1N1 strain of influenza virus, which re-emerged in the early 21st century. Despite advances in public health and epidemiology, the exact origin of the Spanish flu remains uncertain, with potential sources including the United States, China, Spain, France, and Austria. The timing of the pandemic during World War I adds to these uncertainties, a period marked by strict censorship and the increasing use of modern transportation, including intercontinental travel. Within months, the deadly virus had spread around the world. It wreaked havoc in Europe, where military operations and mass gatherings facilitated its rapid transmission, and it wreaked havoc in the United States, Asia, Africa, and the Pacific Islands. The pandemic exhibited an unusually high mortality rate, with about half of the deaths in subsequent waves occurring among young people between the ages of 20 and 40. The flu reached almost every densely populated area of the world, initially affecting port cities and then spreading along transportation routes. India had about 12.5 million deaths, and the virus reached remote islands in the South Pacific, such as New Zealand and Samoa. The United States had about 550,000 deaths. Most of the global deaths occurred in severe second and third waves, with subsequent outbreaks in the 1920s having lower virus counts (Britanica).

1957: Asian flu

The 1957 flu pandemic, an outbreak of influenza first identified in East Asia in February 1957, rapidly spread worldwide. It was the second largest influenza pandemic of the 20th century, after the 1918-19 influenza pandemic and preceded by the 1968 influenza pandemic. The pandemic was caused by influenza A virus subtype H2N2, a reasserting strain that combined avian and human influenza viruses. During the 1960s, the H2N2 virus gradually underwent genetic changes, a process known as antigenic drift, leading to periodic epidemics. After a decade of evolution, the H2N2 strain disappeared, replaced by the H3N2 virus through an antigenic shift, leading to the 1968 flu pandemic. In its early stages, the 1957 flu virus spread rapidly in China and nearby areas. By mid-1957, it had reached the United States, initially causing relatively few infections. However, by November, a second wave of the disease had hit the Northern Hemisphere, resulting in widespread infections, particularly among vulnerable groups such as children, the elderly, and pregnant women. People who were immune from close contact with influenza did not become ill. The rapid development of an H2N2 vaccine and the use of antibiotics to treat secondary infections helped limit the spread of the pandemic and reduce mortality (Britanica, 1957 Flu Pandemic the Global Outbreak).

1972: Smallpox Outbreak in Yugoslavia

The Socialist Federal Republic of Yugoslavia (SFRY) faced quarantine measures, travel restrictions, mass vaccinations, and contact tracing during Europe's last major smallpox epidemic in 1972. Despite advances such as improved sanitation, antibiotics, and vaccination programmes, the continent's last such post-war outbreak underscores the ongoing challenges in identifying and controlling infectious diseases. However, smallpox stands out as the only infectious disease to have been successfully eradicated worldwide, having been declared eradicated by the World Health Organization (WHO) in 1980. Today, individuals aged 40-45 years or younger generally have little immunity to smallpox, as routine vaccination ceased in the 1980s. A review of the 1972 Yugoslav epidemic provides valuable lessons for managing such outbreaks (Irena Ilic, 2022). Smallpox, caused by a highly contagious virus transmitted primarily by aerosols, was a fatal disease with a mortality rate of approximately 30% among infected individuals. Efforts to combat smallpox began in the Middle Ages and culminated in Edward Jenner's development of "vaccination" in the late 18th century. In Yugoslavia, the 1972 outbreak followed decades of absence of smallpox, the last of which was in the 1930s. This long interval, which underscores the importance of being vigilant even against diseases believed to be under control, may have contributed to the initial delay in disease recognition (Ferhadbegoviæ, 2020).

1981: Human Immunodeficiency Virus (HIV/AIDS)

The HIV/AIDS pandemic is a global health crisis that has been unfolding for decades, affecting diverse populations across continents and presenting evolving challenges. Emerging in the United States in the early 1980s, it initially caused widespread public concern as HIV infection led to AIDS and death. Early HIV transmission was most prevalent in the homosexual community, with high mortality rates, social stigma, and isolation. Today, HIV affects an estimated 40 million people worldwide, with a prevalence rate of 0.79%, and has claimed nearly as many lives since its identification in 1981. In 2005, nearly two million deaths were reported. Although HIV is a global public health problem, its spread is particularly alarming. In sub-Saharan African countries such as Botswana, Lesotho, and Eswatini, more than 25% of the population is infected. In the United States, approximately 1.2 million people are infected with HIV, and there are currently about 12,000 annual deaths, down sharply from 40,000 in the late 1990s. The epidemic in the US disproportionately affects gay men, transgender women, and African Americans. As a relatively slow-spreading epidemic, HIV has received considerable attention from public health organizations, governments, and the pharmaceutical industry. Advances in treatment, including protease inhibitors and antiretroviral therapies, have made HIV a chronic condition. In addition, HIV is one of the few infectious diseases to receive attention from the mental health community, as a result of significant research addressing the psychological challenges associated with the disease. Studies show that 22% of people living with HIV experience depression during their lifetime, more than double the rate in the general population. Depression in HIV patients is closely

linked to substance abuse, as well as issues such as stigma, guilt, and shame, all of which can hinder adherence to life-saving treatments. The research explored medical and psychotherapeutic approaches to managing depression in HIV patients, highlighting strategies that address both their mental health and physical well-being. While lessons from HIV treatment provide valuable insights, the chronic nature of the HIV pandemic contrasts sharply with the acute progression of a rapidly progressing outbreak. As a result, mental health approaches tailored to HIV may not be directly applicable to addressing the psychological needs of patients during acute epidemics. However, these studies provide a foundation for understanding the interrelationships between mental health and infectious diseases and informing strategies for managing the broader impacts of pandemics (Huremoviæ, 2019).

2003: Severe Acute Respiratory Syndrome (SARS)

Severe acute respiratory syndrome (SARS) is a viral respiratory illness caused by a SARS-related coronavirus (SARS-CoV). The outbreak, first identified in February 2003, began in Guangdong Province, China, and rapidly spread to four other countries. The World Health Organization (WHO) played a key role in managing the crisis by coordinating an international investigation through the Global Outbreak Alert and Response Network (GOARN). This collaboration involved health authorities from affected regions to provide epidemiological analysis, clinical management, logistical support, and control strategies. SARS is primarily transmitted through respiratory droplets, making it highly contagious. Infected individuals can spread the virus through sneezing, coughing, or talking, similar to the transmission mechanisms of the common cold and influenza. In addition to airborne transmission, the virus can also be transmitted indirectly through surfaces contaminated with infected droplets. This ability to survive on surfaces poses an additional challenge to controlling infectious diseases. SARS was the first significant and highly contagious new disease of the 21st century, and its ability to spread rapidly along international air travel routes highlighted the vulnerability of global health systems. SARS primarily affects healthy adults aged 25-70 years, although some suspected cases have been reported in children under 15 years. Symptoms of SARS usually begin with a high fever (greater than 38°C or 100.4°F) and may include chills, headache, and body aches. In some cases, respiratory symptoms such as a dry cough and shortness of breath develop after 2-7 days and progress to pneumonia. In severe cases, the disease can lead to acute respiratory distress syndrome (ARDS) and multi-organ failure, which may require intensive care and mechanical ventilation. The economic and social impacts were profound, especially in the hardest-hit areas such as Hong Kong, Singapore, and Toronto, where travel bans and quarantine measures and public fear disrupted daily life and economic activity.The SARS epidemic sparked a surge in coronavirus research, paving the way for a better understanding of zoonotic diseases. Subsequent investigations linked the virus to civet cats and bats, emphasizing the role of wildlife in the emergence of new pathogens. The experience with SARS also laid the foundation for public health strategies used during later coronavirus outbreaks, including the Middle East Respiratory Syndrome (MERS) in 2012 and the COVID-19 pandemic in 2019. Although the SARS outbreak was brought under control by mid-2003 through public health interventions, it remains a cautionary tale about the rapid and far-reaching effects of emerging infectious diseases in an interconnected world (Organisation).

2019: Coronavirus Disease of 2019 (COVID-19)

Coronaviruses (CoVs) are a diverse group of enveloped, single-stranded, positive-sense RNA viruses that infect a wide range of hosts, including humans, birds, rodents, carnivores, bats, and other mammals. Although these viruses have long been known to cause respiratory diseases, their importance increased significantly in December 2019 when an outbreak of respiratory infections occurred in Wuhan, the largest city in Hubei Province, China. Initially identified as cases of pneumonia of unknown origin, the outbreak was later determined to be caused by a novel coronavirus. The new pathogen was confirmed as 2019 novel coronavirus (2019-nCoV) by genome sequencing by the Chinese Center for Disease Control and Prevention.As the virus spread rapidly across borders, the World Health Organization (WHO) declared a global health emergency and renamed the disease “Coronavirus Disease 2019 (COVID-19)”. The virus itself was later

named “Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2)”, reflecting its genetic similarity to the virus that caused the 2003 SARS outbreak. The clinical manifestations of COVID-19 range from asymptomatic cases to mild symptoms such as cough and fever, to severe respiratory illness that may require hospitalization. By December 2020, COVID-19 had reached pandemic proportions, with significant outbreaks in countries such as the United States, India, Brazil, Russia, France, and the United Kingdom. In the absence of a definitive treatment or approved vaccine at the beginning of the pandemic, societies around the world implemented strict measures such as social distancing, quarantines, and lockdowns to curb the spread. While these efforts were necessary, they have strained economies and altered the daily lives of billions of people. The pandemic has highlighted the vulnerability of healthcare infrastructure and underscored the urgent need for effective treatment and prevention measures. The COVID-19 pandemic poses a major global challenge, underscoring the need for preparedness, international cooperation, and advances in biomedical research to prevent and mitigate future pandemics (Rehman, 2020).

In response, governments and pharmaceutical companies accelerated vaccine development through unprecedented funding and collaboration. On December 11, 2020, the U.S. Food and Drug Administration (FDA) issued an Emergency Use Authorization (EUA) for the first COVID-19 vaccine. A second vaccine was approved a week later, and three vaccines became available in the United States in February 2021. By December 2021, 71% of the U.S. population had received at least one dose of the vaccine. Despite the widespread availability of vaccines, the emergence of new variants and vaccine hesitancy among some groups have hampered efforts to contain the virus. By the end of 2021, confirmed COVID-19 deaths in the US had surpassed 800,000, and cases continue to rise. The COVID-19 pandemic has underscored the global interconnectedness of public health and the challenges posed by new pathogens.

Learning From History’s Pandemics

The COVID-19 pandemic acted as a stress test for the traditional notion of absolute state sovereignty. While nation-states initially responded with inward-looking policies, border closures, export restrictions, and unilateral lockdown measures, the scale and inter-connectedness of the crisis soon revealed the limits of purely domestic approaches. Managing a disease that crosses borders requires countries to cooperate, share data, and follow international rules beyond their national boundaries. Henry Kissinger (2020), a key architect of the post-Cold War order, remarked that *“The coronavirus pandemic will forever alter the world order.”* While the precise contours of the post-pandemic order remain uncertain. (Akbari, n.d.). The COVID-19 Pandemic is the largest humanitarian crisis since World War Two and the second greatest disease since the 1918 Spanish Flu. According to the WHO Coronavirus Disease (COVID-19) Dashboard globally, as of 12:44 pm, 15 February 2021, there have been 108,484,802 confirmed cases of COVID-19, including 2,394,323 deaths (Akbari, n.d.). Under the revised International Health Regulations (2005), states are required to notify WHO of any event that may constitute a Public Health Emergency of International Concern (PHEIC). Such a declaration does not grant WHO enforcement authority but empowers it to initiate and coordinate global responses. This obligation, reflecting the shift in the global health sector from sovereignty as control to sovereignty as responsibility, limited the scope for confidentiality or unilateralism. (Halabi & Santos Rutschman, 2021).

In this context, global health alliances became key reference points, issuing guidance on testing protocols, non-pharmaceutical interventions, and vaccine distribution frameworks. While states formally retained sovereignty, their political legitimacy increasingly rested on conformity with internationally endorsed norms. WHO recommendations emerged as a benchmark of credibility in both domestic and international arenas. The pandemic thus reconfigured the balance of power: global health governance gained greater normative influence, while states experienced heightened pressure to align their policies with international expectations. By setting standards of legitimacy, WHO guidelines shaped national decision-making; states that resisted compliance risked reputational costs and diplomatic marginalization, illustrating how soft laws and normative frameworks can constrain sovereign partners.

A pandemic of such a large scale required strong global cooperation, which has been missing since the initial days of the virus outbreak, and the disease has also exposed the flaws of these multilateral arrangements in particular of the WHO (Akbari, n.d.). The COVID-19 pandemic not only caused severe economic disruptions worldwide but also altered the balance between national sovereignty and global governance. In its initial waves, the crisis triggered rapid spikes in unemployment, negative or stagnant economic growth, and massive fiscal interventions. For instance, the European Union's GDP fell by 4 % in the first quarter of 2020 and by an additional 12 % in the second quarter, with only a partial rebound of 13 % in the third - still below pre-pandemic levels. In the United States, it is estimated that at least four million jobs lost during the pandemic will be permanent (Hitt et al., 2021). WHO does not have coercive enforcement powers; instead, sovereignty was limited through soft power and normative authority. States acted within a framework where deviation from WHO guidance carried reputational, diplomatic, and sometimes economic costs.

WHO guidance on testing, masking, case reporting, and later vaccine prioritization became central reference points for many governments. Institutional mechanisms such as COVAX and the Access to COVID-19 Tools (ACT) Accelerator have sought to coordinate vaccine distribution on the basis of principles of equity across borders. Equitable access to vaccines remains a global priority, and while significant progress has been made in coverage, it is critical that these gains are sustained for populations at higher risk of severe disease. In this background, WHO now recommends a simplified single-dose primary immunization schedule for most COVID-19 vaccines, designed to increase acceptance, improve uptake, and provide adequate protection in pre-infection settings. However, many low-and middle-income countries, which lack bargaining power in global pharmaceutical markets, have relied heavily on these WHO led structures. This reliance has effectively curtailed their autonomy in determining vaccine procurement and distribution, illustrating how the ability to set rules and manage resources can constrain state sovereignty (WHO).

In 2021, at the height of the COVID-19 pandemic, the WHO exercised its collective decision-making authority to set a global target of achieving 70 percent vaccination coverage by mid-2022. While implementation remained country-led, national strategies were designed in line with this global standard. The prioritization of high-risk populations, such as older adults, health workers, and individuals with underlying medical conditions, including immunocompromised individuals, reflected WHO's normative guidance, which linked national legitimacy to alignment with international standards. Achieving these targets depends on strong leadership engagement, cost-effective vaccination programmes, and sustained momentum to protect priority groups. WHO has placed increased emphasis on integrating COVID-19 vaccination into broader immunization services, linking the pandemic response to long-term capacity-building in national health systems. As public perception of risk declined, WHO guidance led governments to adopt adaptive risk communication and coordinated funding mechanisms to sustain vaccine demand. Institutionally, the launch of the COVID-19 Vaccine Delivery Partnership, a joint initiative of WHO, UNICEF, and Gavi in collaboration with the World Bank and other partners, demonstrated the collective dimension of decision-making in global health governance. Operating on the principle of "one country team, one plan, one budget", COVID-19 Vaccine Delivery Partnership focused on 34 countries with low vaccine coverage, placing national governments at the center and embedding them within an international framework of shared planning and resource mobilization. This illustrates how, through collective mechanisms and alliances, WHO not only set global vaccination goals, but also shaped national policy space and subtly redistributed power from sovereign states to global governance structures (WHO, Vaccine Equity).

Conclusion

The history of pandemics reveals recurring pattern of devastation of power, resilience, and transformation. Each outbreak, from ancient plagues to modern pandemics, has left an indelible mark on human civilization, shaping public health responses, scientific advancements, and societal structures. The lessons learned from past pandemics highlight the need for vigilance, collaboration, and investment in

healthcare systems to mitigate the impact of future outbreaks. Modern advances in medical science, such as vaccines and antiviral treatments, have provided hope for controlling pandemics, but the COVID-19 pandemic serves as a stark reminder of ongoing vulnerabilities. By reflecting on the chronological order of pandemics, society gains a deeper understanding of the intertwined relationship between disease and humanity, reinforcing the imperative for global solidarity in facing future health challenges. Crucially, pandemics have also consistently reshaped political landscapes. From the centralization of state power during the Black Death to the rise of public health bureaucracies in the 19th and 20th centuries, disease has often served as both a catalyst and a justification for political change. Quarantine laws, surveillance systems, and border controls all developed in response to health crises, have long-lasting implications for civil liberties and the balance of power between the individual and the state. The COVID-19 pandemic, for example, reignited debates on democratic governance versus authoritarian efficiency, and exposed disparities in global health equity, vaccine diplomacy, and the politicization of scientific data. Throughout history, disease has not only challenged governments but has also been wielded by them as a tool for control, neglect, or even blame. Understanding the political journey of disease therefore requires a multidisciplinary lens, one that considers not just microbes and medicine, but also ideologies, governance, and public trust. From the Athenian plague that weakened a democracy, to colonial powers that manipulated health narratives to assert control, to contemporary populist responses that have deepened mistrust in science, pandemics are as much about politics as they are about pathogens. As we prepare for future outbreaks, it is not only scientific preparedness but also political accountability, international cooperation, and ethical leadership that will determine the outcomes.

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IP- Competition Law Interface: Section 3(5) of the Competition Act and Beyond

Raju Narayana Swamy

IP and competition laws are founded with the purpose of promoting innovation and achieving economic development, technological advancement and consumer welfare. IPR is an intangible right protecting commercially valuable products of the human intellect. It gives its owner the right to exclude others form access to or the use of protected subject matter for a limited period of time. The relation between IPR and competition law has been described as an unhappy marriage. The former may be seen to promote monopolies while the latter is designed to oppose them. Their interface can be seen from two main perspectives: the impact of IPRS in shaping the discipline of competition law and the application of competition law on the post-grant use of IPRS. Competition law can play a proactive role in arresting the abuse of monopoly rights granted by IPR.

Keywords : Patent monopolies, unfettered jurisdiction, reasonable conditions, collective dominance, letters patent appeal.

Introduction

IP and competition laws share the same economic rationale. Both are founded with the purpose of promoting innovation and achieving economic development, technological advancement and consumer welfare. IPR is an intangible right protecting commercially valuable products of the human intellect. It gives its owner the right to exclude others from access to or the use of protected subject matter for a limited period of time. This includes copyrights, patents, trademarks, industrial designs and trade secrets. Competition law on the other hand involves formulating a set of policies which promote competition in the market. These are aimed at preventing unfair trade practices. Well designed and effective competition laws promote the creation of an enabling business environment which improves static and dynamic efficiencies and leads to efficient resource allocation.

The relation between IPR and competition law has been described as an unhappy marriage. The former may be seen to promote monopolies while the latter is designed to oppose them. To put it more succinctly, IPRs by designating boundaries within which competitors may exercise legal exclusivity over their innovation appear to be against the principles of static market access and level playing fields sought by competition rules. In fact, the tension between competition policy and IPR dates back to the days when the statute of Monopolies 1624 was enacted in England. It prohibited monopolies, but permitted 'patent monopolies'. But as Martin Khor puts it, a trade off may exist between achieving static efficiency through competition and long term efficacy through growth and innovation.

Broadly their interface can be seen from two main perspectives:

- The impact of IPRs in shaping the discipline of competition law.
- The application of competition law on the post-grant use of IPRs.

In fact IPR- related competition issues include:

- Exclusionary terms in the licensing of IPRs-specifically the inclusion in licensing contracts of

restrictive clauses such as territorial restraints, exclusive dealing arrangements, tying or grant back requirements.

- Use of IPRs to reinforce or extend the abuse of dominant position in the market unlawfully.
- IPRs as an element of mergers.
- Refusal to deal.

There are generally two approaches that have been adopted to prevent IPR abuse: compulsory licensing and parallel imports. The former is an involuntary contract between a willing buyer and an unwilling seller imposed and enforced by the state. The latter refers to goods brought into a country without the authorization of the patent, trademark or copyright holders after those goods were placed legitimately into the market elsewhere.

The International Scenario

Internationally the interface between IPR and competition law is governed by the TRIPS Agreement. Members are allowed to take appropriate measures consistent with the TRIPS to prevent abuse of IPRs by right holders. Article 31 of TRIPS provides for the grant of compulsory licenses under a variety of situations which include:

- Anticompetitive practices by the patentees or their assignees.
- National emergencies
- The interest of public health
- Nil or inadequate exploitation of the patent in another country
- Overall national interest.

Article 40 of TRIPS deals with anticompetitive practices in contractual licenses. In addition Article 30 permits Members to create limited exceptions to patent rights. In fact, critics consider Article 30 to be the relevant provision enabling Members to address abusive practices in acquiring and exploiting IPRs.

The Indian Position

The Indian Competition Act incorporates an exception for IPRs under Section 3(5) based on the rationale that IPRs deserve to be cocooned since a failure to do so would disturb the all - important incentive for innovation. The said provision reads as follows:

"Nothing contained in this section shall restrict-

(i) the right of any person to restrain any infringement of or to impose reasonable conditions as may be necessary for protecting any of his rights which have been or may be conferred upon him under

- the Copyright Act, 1957 (14 of 1957)
- the Patents Act, 1970 (39 of 1970)
- the Trade and Merchandise Marks Act, 1958 (43 of 1958) or the Trade Marks Act, 1999 (47 of 1999)
- the Geographical Indications of Goods (Registration and Protection) Act, 1999 (48 of 1999)
- the Designs Act, 2000 (16 of 2000)
- the Semi-conductor Integrated Circuits Layout -Design Act, 2000 (37 of 2000)

(ii) the right of any person to export goods from India to the extent to which the agreement

relates exclusively to the production, supply, distribution or control of goods or provision of services for such export."

Thus under Section 3 (anti-competitive agreements), IPRs have been protected to the extent that they are reasonable. Unreasonable conditions contained in an agreement will not be protected. On the other hand when an enterprise enjoys a dominant position and is thus covered by Section 4 (abuse of dominant position), it enjoys no immunity for its IPRs. This has been confirmed by the CCI in the Automobiles decision rendered on 25 August 2014. However, experts feel that the language used by the CCI in the said decision - which suggests that the existence of IPR is completely irrelevant to the analysis under Section 4 - is questionable.

It is worth mentioning here that under Section 27 of the Competition Act, the CCI has the authority to penalize IPR holders who abuse their dominant position. A fact to be noted is that there is no clause in Section 4 on the ground of public interest or IPR abuse as a reason for interference. Action can taken only when there is 'appreciable adverse effect on competition'.

A critique of IPR exemption under Section 3(5)

Pharma industry experts often lament that "owing to the blanket exemption under Section 3(5), the square peg of any anti-competitive practice tethered to the use of IPRs must now be brought through the round hole of "abuse of dominant position" under Section 4". While one can sympathize with the emotion, this is perhaps a very narrow and cynical view. True, Section 3 remains puzzling in as much as it goes against the MRTP commission precedent under the old Act which held that the Commission (and by extension the Competition Commission of today) had complete and unfettered jurisdiction to entertain a complaint regarding IPRs. However it needs to be mentioned that Section 3 (5) does not give protection to unregistered IPRs such as unregistered trademarks. Even with respect to registered IPRs, the language of Section 3 (5) suggests that it contains an exception (viz) the right to impose reasonable conditions. The expression "reasonable conditions" has not been defined or explained in the Act and has to be decided by the CCI on a case to case basis. For instance in the Multiplex Association case the movie producers argued that the decision to not release any movies was reasonable to protect their copyright in the movies and thus valid under Section 3(5). The CCI held that IP laws do not have any absolute overriding effect on competition law and found cartel - like activity in the Indian film industry. The rights guarantees under Section 14 of the Copyright Act do not allow IP holders to act arbitrary and inconsistent with the provisions of competition law. It was held that the Act exempts the provision with respect to anti - competitive agreement in only limited circumstances (ie.) to protect the rights conferred by the relevant IP statutes.

In Shamsher Kataria vs Honda / Volkswagen / Fiat India and others for instance the CCI decided on whether the OEM's (Original Equipment Manufacturer) claim over IPR exemption passes the reasonability test engrained in Section 3(5) (i) of the Act. It was observed that the concept of protection of an IPR under Section 3(5)(i) is qualified by the word 'necessary'. So the question that one should ask is: Can the IPR holder protect his IPR even if such restriction was not present? Applying that test, CCI did not find merit in the OEM's contention. It was noted that what the OESs (Original Equipment Suppliers), sell to the open market are spare parts which are finished products (bumpers, bonnet / hoods, car gears, fog lights etc). The IP required by the OESs to manufacture a spare part will be protected contractually pursuant to the agreement between the OEM and the OES and allowing OESs to sell the finished products in the open market may not affect that agreement as such.

It needs to be mentioned here that the CCI in their advocacy measures has provided an illustrative / indicative list of practices that may be unreasonable under Section 3(5).These include:

(a) Patent pooling

(b) Forcing licensees to acquire particular goods (unpatented materials) solely from the patentee.

(c) Payment of royalty beyond patent expiry

(d) Subjecting a license to the condition that the validity of IPR in question cannot be challenged.

(e) Limiting the maximum amount of use the licensee may make of the patented invention.

The CCI has also clarified that the IPR must have been conferred on the holder prior to the exception being availed. Interestingly the Patents Act, 1970 explicitly prohibits certain licensing arrangements under Section 140. These include (among others) coercive package licensing and mandating exclusive grant back. It needs to be mentioned here that the Patents Act declares these conditions void and in principle not within the scope of patent rights. In such cases, the exemption under Section 3(5) of the Competition Act will not come to the rescue of the licensing parties.

Worth mentioning here is the issues of 'trade secret'. The Director General's Report points out that since 'trade secret' does not find a mention in Section 3(5), it ought not be protected. Notably the aforesaid section protects rights conferred by specific statutes and trade secret protection in India is not governed by any specific statute. Thus prima facie it appears to be excluded from protection. Nonetheless an argument can be made that even outside the scope of the said section the existence of trade secrets could be a relevant factor in assessing appreciable adverse effect on competition especially since the Apex Court has recognised reasonable protection against exploitation of trade secret.

India's IPR related competition litigation

It was the Aamir Khan Production Vs The Director General that opened a plethora of cases dealing with IP and competition issues in India. In the said case the Bombay High Court held that the CCI has the jurisdiction to deal with competition cases involving IPR. In Kingfisher Vs Competition Commission of India also it was held that all the issues that rose before the Copyright Board could also be considered before the CCI.

In yet another case, the CCI took a diminutive stand on DTH (Direct To Home) operators in India. The said operators were exonerated based on the argument that there is no such concept as 'collective dominance' in the Competition Act of India. It is very much doubtful whether the CCI decision is at par with similar in comparable jurisdictions. To be true to facts, the Indian jurisprudence on the subject can be classified under the following major heads:

- Abuse of dominant position

The law firm Singhania & Partners LLP filed a complaint with the CCI against Microsoft India, alleging anti-competitive practices and abuse of dominance in the Indian market with regard to their software - Windows Operating System and Windows Office. The COMPAT (Competition Appellate Tribunal) upheld the CCI ruling that Microsoft did not abuse its dominant position regarding its software license in an order dated 9th October 2012. In fact the said case was decided in favour of Microsoft despite the fact that Microsoft was facing adverse rulings in other jurisdiction like US and EU.

The Delhi High Court in the Hawkins case dealt with an allegation by the plaintiff that the defendant company was using the plaintiff's trade mark "Hawkins" on their products which were pressure cooker gaskets. The Court held that a well-known mark cannot create a market monopoly due to its reputation. If it does create a monopoly it cannot use this economic strength to control the ancillary markets, then it would be considered as an abuse of dominant position.

- Refusal to grant IP license

Refusals when limited to decisions of a single entity would have to be examined under Section 4. But where the refusals involve multiple entities (ie) group boycott the examination may proceed under both Sections 3& 4 of the Act. The IMS Health Case however put three conditions to be satisfied for declaring a refusal as an abuse of dominant position. They are:

1. That the refusal to license is preventing the emergence of a new product for which there is a potential consumer demand.
2. That it is unjustified and
3. That such refusal excludes competition in the secondary market.

Complications abound in this area because of lack of guidelines from CCI and due to the fact that this subject matter is addressed in some IP legislations. To quote an example, under Section 84 of the Indian Patents Act 1970, the Controller of Patents has the power to grant compulsory license after expiry of 3 years from grant of patent in case the patented invention does not meet the 'reasonable requirements of the public' or 'is not available to the public at a reasonably affordable price' or 'is not worked in the territory of India'. It is worth mentioning in this context that in 2012, the Controller of Patents granted a compulsory license to Bayer's patent covering a cancer drug to a generic Indian drug manufacturer on all three grounds.

The Copyright Act, 1957 contains similar provisions through of a narrower scope. Compulsory license may be issued pursuant to Section 31(1)(b) of the said Act. It is worth mentioning here that this provision extends only to certain types of a copyrighted works and not all. In Music Broadcast Pvt. Ltd Vs Phonographic Performance Ltd (a 2010 decision), the Copyright Board issued compulsory license to musical works in favour of the FM radio industry on a revenue sharing model (ie) 2% of the net advertisement earnings of each FM radio station would be set aside to pay the music providers.

Other IP legislations however do not carry such explicit provisions.

Excessive pricing and predatory pricing

Predatory pricing is a strategy - that entails a temporary price below the cost of production in order to injure competition and thereby reap higher profits in the long run. It was considered by the MRTP Act as a restrictive trade practice. However, overpricing of any patented product per se is not violative of any competition provisions. But keeping the pricing of patented and branded generics outside the scope of price control is a major concern particularly in developing countries in the area of life saving drugs.

Implications of merger control

Technology transfer agreements and other acquisition of IPRs may require the approval of CCI. Such transactions must be reviewed to check whether sanction is needed from a merger control perspective under Sections 5 and 6 of the Act.

The Novartis Case and evergreening

The Novartis case raised the issue of extended patent application with the evergreening effects and excessive pricing of proprietary medicine. It was an eye-opener for developing countries like India.

Mention also needs to be made here of trade dress as a barrier to competition. In a country like India, colour plays a significant role in patient retention and consumer loyalty. For example, the use of a purple coloured inhaler is a sure way of keeping an asthmatic patient handcuffed to a brand for life if the colour of the inhaler is protected as a trademark even after the patent on the drug empires and other cheaper and perhaps even more effective alternatives are available albeit in different coloured inhalers. To put it a bit differently, the use of a colour, shape or trademark extends a patent monopoly for every patient who either has no choice once the doctor prescribes a drug or device or suffers from such a medical condition that a change would be extremely disruptive of his treatment regimen, causing him to reject the choice of cheaper alternatives.

The judgment of the Division Bench of the Delhi High Court

It is worth mentioning in this context that a Division Bench of the Delhi High Court vide its judgment

dated 13th July 2023 in Telefonaktiebolaget LM Ericsson (PUBL) Vs Competition Commission of India over turned an earlier decision (delivered on 30 March 2016) by a single judge bench who had maintained the CCI's jurisdiction in patent-related disputes. Ericsson which was being investigated by the CCI for possible abuses of dominance in patent licensing had challenged the Commission's jurisdiction through a Letters Patent Appeal (LPA) from the order of the single bench. They contended that patent matters are exclusively the responsibility of the Controller of Patents. The single judge, it needs to be mentioned here, was emphatic in culling out that there were differences between the remedies available under Section 84 of the Patents Act 1970 (provisions pertaining to compulsory licensing) and those described in Section 27 of the Competition Act. The remedies are not mutually exclusive, individuals have the option to seek redress under both if desired.

In its judgment dated 13th July 2023, the High Court observed that the Competition Act and Patents Act are specialized statutes in competition and patents. A special reference was made to an amendment carried out in 2003 to the Patents Act. The High Court found that when the legislature introduced Chapter XVI of the Patents Act in 2003 - a year after the Competition Act was passed – it was evident what the legislature intended. The goal was to turn the Patents Act into a unique piece of law. The Court concluded that the Patents Act supersedes the Competition Act with respect to the exercise of patentee rights as it viewed the Patents Act as a special legislation and applied the legal precept lex posterior derogate priori. By accepting Ericsson's appeals, the Court invalidated the CCI's jurisdiction over such matters.

Legal experts however are of the view that the logic that the Patents Act came later is flawed. To be true to facts, the Gazette of India notification for inclusion of Chapter XVI of the Patents Act was made through the publishing of the Patents (Amendment) Act, 2002. It received the assent of the President on 25 June 2002 and was published in the Gazette on the same day. On the other hand the Competition Act received the assent of the President on 13 January 2003 and was published in the Gazette of India the next day. Thus it is crystal clear that the Competition Act was the later statute. Moreover, according to Section 60 of the Competition Act, its provisions supersede and have the upper hand over any conflicting provisions found in other laws that were in existence. Thus a plain reading of the head note of Section 60 tells us that the competition law will have an overriding effect on Chapter XVI of the Patents Act.

In fact, the powers of the Controller are personal in nature as opposed to being in rem like those of CCI. Thus CCI may have superior capabilities in monitoring patent cartels compared to the Controller. The Competition Act does not contradict the broader objective of the Patents Act. If a hierarchy is established among the legislations, the significant differences in the content of their substantive provisions may be disregarded and collaborative anti-competitive agreements involving patents may go unregulated.

Conclusion

Competition law can play a proactive role in arresting the abuse of monopoly rights granted by IPR. Though IP rights are necessary for furthering efficiency and development in a market, their potential to lead to anti-competitive outcomes cannot be ruled out. This is all the more relevant now that Courts have settled the principle that the interest of the consumer and competition in the market are of supreme importance and cannot be sacrificed. Needless to say, one cannot operate like a cartel in the name of 'collective bargaining' which is what happened in the FICCI Multiplex case. India can use compulsory licensing provisions in case of excessive pricing of any products including copyrighted and patented software. Tying arrangements should be dealt with using competition provisions. Specific guidelines need to be promulgated by the CCI in cases involving both IP and Competition. Only then can the conflicts in the overlapping zones of competition law and IPR be resolved and their interaction be brought to a level that is neither conflicting nor aimed at one replacing the other. This confluence can draw attention to the intricate connection between fostering market competition and safeguarding IPR. For this Utopia to come true what is needed is deeds not words and the political will accompanied by the administrative acumen to execute.

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An Empirical Study of MGNREGS Works in Kerala

Soorya Anand

Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) is a revolutionary move to terminate poverty and unemployment in rural areas. The implementation of the scheme is successful in terms of large-scale employment, women empowerment, asset creation, watershed development, prevention of drought and reduction in large scale migration. The present study is a modest attempt to compare the work execution scenario in Kerala by taking the perceptions of beneficiaries of the scheme. There has been wide inter-state as well as inter district variations in the accomplishment of the objectives of the MGNREGS. Therefore, this paper focuses on the different facets of work implementation aspects in Kerala from the perspective of the beneficiaries of the scheme using primary data. The study confirms that though the scheme has changed the rural face of the state still there persist some anomalies that need to be tracked at the earliest for achieving more sustainable outcome.

Keywords : Poverty, unemployment, beneficiaries, determinants, asset creation.

Introduction

The Kerala Rural Employment Guarantee Scheme was introduced in June 2006. Since its inception, the programme percolates through the bottom layers of the economy of Kerala. The rights and entitlements under the scheme attracted the rural unskilled workers to seek work under MGNREGS (Mahatma Gandhi National Rural Employment Guarantee Scheme). Various studies have indicated the higher participation of women folk in Kerala. Another salience of the programme implementation in Kerala has been the active involvement of Kudumbasree unit (a women employment and poverty eradication programme under State Poverty Eradication Mission). A vibrant and vigil LSGs in Kerala also facilitate the smooth functioning of MGNREGS in the State. Thus, higher level of education among the implementing authorities, higher level of participation of common people in Panchayat meetings, active involvement of women groups and higher level of political awareness are the favourable conditions in Kerala for the better implementation of the scheme, free from discriminations (Narayanan S., 2008).

MGNREGS Operational Guidelines specified that a major part of the responsibility for the success of MGNREGS rest with its beneficiaries, Gram Sabha's and Gram Panchayats (GPs). Better planning of works, time-bound completion and efficiency of works to a large extent depends upon the active participation and involvement of the beneficiaries in various processes of the scheme implementation. Gram Sabha provides an open platform for the common people as well as the beneficiaries to become a part of the decision-making process. In contradiction to several other States in India, GPs in Kerala have been functioning as the pivotal implementing authorities of MGNREGS in the State. Hence, it can be stated that MGNREGS beneficiaries and GP operations play a critical role in careful planning and efficient execution of MGNREGS works. It is pertinent to note that, to date, none of the studies on MGNREGS attempted to analyse different aspects of MGNREGS work execution from the perception of its beneficiaries. In this context, the present study proposes to examine the work execution of MGNREGS in Kerala through a primary survey of MGNREGS beneficiaries conducted in three regions of the state to evaluate various aspects of work execution.

Literature Review

Since the study exclusively focused on the works carried out under MGNREGS in Kerala, the review of literature was also done and circumscribed in accordance with the planning, implementation and outcome of different works taken up in Kerala.

Jacob and Varghese (2006) assessed MGNREGS implementation in Kerala through a study conducted in Palakkad District. They discussed the implementation and challenges faced by the scheme in the District. The study focused on assessing the labour force participation rate, wage payment process, awareness level and some issues connected with the ongoing process within the scheme. They noted a high rate of participation of women in the district. The local bodies play a vital role in the implementation process of the scheme. The corruption level was also minimal as noted by this study. On the other hand, the study has found out some implementation problems which can become hindrances to the progress of the scheme in the State. One of the major problems was the improper estimation of labour requirements. Because of lack of estimation of labour requirements, women workers were not able to complete some productive asset creation works within the stipulated time horizon and on these grounds, they were denied the payment of full wage. Another issue as noted by them was with regard to the provision of 40 percent material costs under the scheme. The study concluded with a suggestion for more diversion towards material costs to initiate more assets creating works.

Chathukulam and Gireesan (2007) conducted an impact assessment study of MGNREGS in two blocks of Palakkad and Wayanad Districts. The main objective of the study was to analyse the systems and processes emerged during the initiation and execution of MGNREGS in Kerala. Thirty GPs from the two Districts were selected where the scheme first came into practice. Extensive field survey was used in the study. The study found out that the scheme was successful in targeting the needy households. About 76.86 percent of the works were completed during the period 2005-2007. It is seen that 537 beneficiary households received more than 100 days of the stipulated work days. The major defects noted in the earlier Wage Employment Programmes were almost absent in MGNREGS. The study remarked that MGNREGS turned out to be a better strategy to address poverty when compared to earlier schemes and resulted in shifting of priority from rural connectivity to long term sustainability projects on land, water and bio-mass. On the contrary, the study also revealed that there was lack of proper SA and the unemployment allowance was also not provided to the eligible non-beneficiaries. Initiation of capacity building sessions, integration of MGNREGS staff with other department staff, scientific labour budgeting and provision of accurate and timely conduct of SA process were the major recommendations put forward by this study.

An impact assessment study of MGNREGS was done by K.N.Nair (2009) in three GPs of Kasaragod District i.e. Madikkai, Ajanoor and Trikarpur. The study looks into the impact of the scheme on employment generation and wages of the worker households, the organisational arrangements for the planning and implementation of the scheme and also on the potential benefits of the assets created upon the lives of the rural poor. Two wards from each Panchayat were selected by them on the basis of expenditure criterion. Simple random sampling of the worker household and snowball sampling of the 15 indirect beneficiary households were the tools used in this study. The study revealed that MGNREGS has benefitted the social and financial status of the poor household. The income generated from MGNREGS enhanced the purchasing power of the poor people, especially women. The scheme has exposed the rural women before the public and they become more confident in dealing with day-to-day aspects. The study also mentioned the negative impact of the scheme on agriculture. With regard to asset creation the study found out that lack of proper planning and lack of adequate fund resulted in lack of durable assets. The study recommended meticulous planning and training in identifying and implementing the works can enhance the asset creation capacity of MGNREGS.

The Kerala State Planning Board (2009), studied the performance of MGNREGS in the State by taking the districts covered during the first and second phase of implementation. Two Panchayats from two Blocks

were used as the sample, one represents the best performance and the other represents low/average performance with the intention to study the strength and weakness of the scheme in the State. In addition to this, this study also looks into analysing the performance of the demand driven aspect of the scheme, the extent of empowerment, the creation of productive assets and the protection of environment possible through the scheme. The study shows that the scheme was successful in meeting its objectives. The poor and the deprived sections of the society have benefitted more from the implementation of MGNREGS. Income, savings, purchasing power, social relationships etc. were enhanced. The works undertaken under the scheme also prove beneficial to the beneficiaries as well as to the society. Overall, the study reveals that MGNREGS was truly successful in its implementation in the State despite some limitations. To improve the functioning of the scheme, the study recommended for dovetailing of the scheme funds and activities with the other local level funds and activities. An increase in wage rate so as to retain and attract more workers to the scheme was also suggested.

Abraham (2016) in his study of the process of asset creation under MGNREGS shows that the works under MGNREGS were largely done on private lands.81 percent of the assets were created as per the specifications. He noted that Kerala possesses a vigil GP system, the main factor behind the implementation of the scheme. He also shows that the assets created in Kerala were not durable. Flood control and flood protection was one of the most important works carried out in the State. Land development works also get priority and these works were related to clearance of unused land and preparation for agriculture. Another feature the author noted was that the choice with regard to the decision to carry out a specific work was taken according to the needs of the local people. Under expenditure was also found out in the State.

Shah and Jose (2009) in their paper on 'Asset Creation and Local economy under MGNREGS: Scope and Challenges' examined the impact of various assets created under the scheme on local economies and discussed policy implications for ensuring realization of the potential. This exploratory study looks at the capacity of MGNREGS in creating productive assets which simultaneously increase access to irrigation and thus enhance agricultural growth. The investment in land and water resources, if properly planned can result in promoting economic growth and poverty reduction via increase in agricultural productivity. The paper also discussed the practicability of linking MGNREGS with various developmental initiatives which paves the way for sustained increase in income and employment.

Statement of the Problem

Though MGNREGS has been hailed as the largest employment guarantee programme in the world, its prospective to promote sustainable development through capability enhancement is a moot question which captured the attention of many development thinkers. Works under MGNREGS should be identified, planned, executed and maintained in a refined manner so as to endow them to enhance the capability of the people and the area it belongs to. The potential of MGNREGS as a development programme need to be explored through the execution of right type of works in right areas with a desirable quality. Sustainable and productive assets could raise the livelihoods of rural poor and can stimulate sustainable development, the greatest challenge before any developing economy. In spite of the ability of MGNREGS works to transform rural lives, the performance of these works has been not up to the desired level in Kerala when compared to other States. Studies on MGNREGS in Kerala conducted earlier by experts and researchers and various Government reports exclusively focus on the impact-assessment of the scheme. This warrants a need to conduct a study on works undertaken under MGNREGS in Kerala from the perspective of MGNREGS beneficiaries which has the potential to substantiate the process of sustainable development.

Objectives of the Study

- To examine the work execution scenario under MGNREGS from the perspective of beneficiaries
- To find out the suggestions of beneficiaries for the better execution of MGNREGS works

Conceptual Framework

Nurkse (1952) and Tinbergen (1994) accepted the efficacy of employment guarantee programmes as a development paradigm that can promote sustainable employment as well as sustainable development. The surplus labour force can be used for labour intensive works to generate rural assets in the economy. In the long run, these assets can raise the rate of growth of sustainable employment. Investment should be made to create employment initially, but it mandates increasing the productivity of labour in the future. In the words of Nurkse, "the construction of public works such as river dams, irrigation canals and roads can typically make use of masses of unskilled labour with relatively little equipment" (Nurkse, Reflections on India's development Plan., 1957). Thus, these programmes have emerged as a tool that promotes strategic use of surplus man power for promoting pro-poor growth leading to sustainable development (Tinbergen, 1994).

The economics of MGNREGS is also at par with the theory of "Big Push" put forward by P.N Rosenstein Rodan in 1943. The theory contends that a 'big push' is inevitable where the market fails to provide the incentive necessary to individuals to take up any activity which is productive. When there is a slow-down in the process of growth, this will easily reflect in the backward regions of the country where the distress prevails. Hence, Government intervention is essential to give a big push to these regions. In the words of Rodan, 'in order to get out of from the 'low-level equilibrium trap', a big push is needed (Rodan, 1943). The employment guarantee scheme of India assumes great significance as an effort to enrich the backward regions of India where the people are struggling hard to earn a livelihood. The initial public investments for the scheme implementation would spur private investments in the long-run.

The aforementioned theories and perspectives give an impetus to indulge deeply to an analysis of MGNREGS works, its capability in covering the rural population, its effect on employment generation and on the quality of these works in Kerala. Every theory has its own implications to MGNREGS. Therefore, applying a particular theory to explain the pattern of works implementation and its effects may be inadequate and inappropriate. This combined analytical and/or theoretical frame work may be considered appropriate and reasonable for the study.

Methodological and Statistical Framework

The study is descriptive and exploratory in nature. Primary data was used for the analysis of the study. Primary data was collected from the beneficiaries of MGNREGS during 2020-21. Kukeran formula was used to find out the required sample size for the study.

$$n = \frac{\frac{Z^2 pq}{d^2}}{1 + \frac{1}{N}\left(\frac{Z^2 pq}{d^2} - 1\right)}$$

1	Z	=	statistic for a level of confidence (e.g. 1.96 for 95 percent)
2	p & q	=	Expected proportion (0.5 used for sample needed)
3	n	=	sample size with definite population
4	d	=	precision (0.05 used for sample needed)
5	N	=	Whole Statistical population

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$$\frac{\frac{1.96^2 \times 0.5 \times 0.5}{0.05^2}}{1 + \frac{1}{955976}\left(\frac{1.936^2 \times 0.5 \times 0.5}{0.05^2} - 1\right)} = 384$$

The sample size was estimated as 384 beneficiaries at margin error of 5 percent and confidence level of 95 percent with response distribution of 50 percent. The sample was selected by multi-stage random sampling technique. The districts selected from North, Central and South Kerala are Kannur, Thrissur and Alappuzha respectively. The required sample size for each region was estimated proportionally as follows.

Region	Districts	Population	Sample
North	Kannur	54234	106
Centre	Thrissur	60476	119
South	Alappuzha	81345	159

From each Districts, 4 Panchayats were selected at random. The sample size of each District was selected proportionally from the list of beneficiaries provided by Panchayat. The sample beneficiaries were selected from the lists using random number generated in Microsoft excel. Data from the beneficiaries was collected with the help of pre-tested structured interview. The important statistical tools for the analysis of primary data were descriptive statistics, one-sample t test, Chi-Square test and Friedman test.

Data Analysis and Interpretation

Proper execution of works plays a decisive role in realizing the full potential of productive capacities in rural economies through MGNREGS. It is important that the work carried out under the scheme is planned and executed in such a way so as to impact the local economies in terms of employment and by creating productive assets. Therefore, it is relevant to take information related to execution of MGNREGS works from the beneficiaries, as they are the key informants in this regard. The data gathered and analysed are presented through the tables given below.

Table 1 Distribution of sample beneficiaries by their participation in the ongoing work

Works	Total		Region						Chi-square	Sig.
			North		Centre		South			
	n	%	n	%	n	%	n	%		
Construction of anganwadi centres	4	1.04	4	3.77	0	0.00	0	0.00	14.474	0.415
Drought Proofing	50	13.02	14	13.21	15	12.61	21	13.21		
Individual Household Latrines	22	5.73	8	7.55	6	5.04	8	5.03		
Land development works (public)	19	4.95	5	4.72	6	5.04	8	5.03		
Land development works (private)	65	16.93	20	18.87	19	15.97	26	16.35		
Rural connectivity works	33	8.59	10	9.43	9	7.56	14	8.81		
Water conservation and harvesting (public)	22	5.73	7	6.60	7	5.88	8	5.03		
Water conservation and harvesting (private)	169	44.01	38	35.85	57	47.90	74	46.54		
Total sample	384	100.00	106	100.00	119	100.00	159	100.00		

Source: Primary Survey

From the survey, it is found out that the major work carried out under MGNREGS is water conservation and harvesting works on private land. 44.01 percent beneficiaries reported that presently they are engaged in water conservation and water harvesting works on private land. Land development works on private land was the next prominent work participated by the beneficiaries in the study area. 16.93 percent land development works were undergoing during the study period. This was followed by drought proofing works (13.02 percent) and rural connectivity works (8.59 percent). Water conservation and land development works on public land were also underway, though the share was low. Infrastructure development works such as construction of Individual Household Latrines (IHHL) and construction of anganwadi centres were the important new works taken up by MGNREGS in the study areas. The share of IHHL and anganwadi centres was 5.73 and 1.04 percent respectively. Among the regions, water conservation and water harvesting works on private land was the highest in Central region (47.90) followed by Southern region (46.54). From the Chi-Square test, it can be seen that there is no significant regional variation in the currently participating work by the sample beneficiaries as the significance level of Chi-Square test is greater than 0.05. It was informed from MGNREGS mates that different new works which are productive in nature are being planned by them to present before the implementing officials.

Table 2 Distribution of sample beneficiaries by the status of getting proper assistance and guidance to do the work

Status	Total		Region						Chi-square	Sig.
			North		Centre		South			
	n	%	n	%	n	%	n	%		
Yes	372	96.87	102	96.23	113	94.96	157	98.74	3.423*	0.181
No	12	3.13	4	3.77	6	5.04	2	1.26		
Total sample	384	100.00	106	100.00	119	100.00	159	100.00		

**More than 20 percent of the cells have expected count less than 5.*
Source: Primary Survey

Table 2 depicts the responses of the beneficiaries regarding the status of getting proper assistance and guidance to carry out work. 96 percent of the beneficiaries confirmed that they got proper guidance to carry out work under MGNREGS. The remaining 3.13 percent commented that they did not get any guidance to carry out the work. The Chi-Square test computed indicated that there is no significant variation among beneficiaries from three regions of Kerala regarding the status of getting adequate guidance to undertake various works.

Table 3 Distribution of sample beneficiaries by the status of getting sufficient equipment to carry out the work

Status	Total		Region						Chi-square	Sig.
			North		Centre		South			
	n	%	n	%	n	%	n	%		
Yes	345	89.84	95	89.62	107	89.92	143	89.94	0.008	0.996
No	39	10.16	11	10.38	12	10.08	16	10.06		
Total sample	384	100.00	106	100.00	119	100.00	159	100.00		

Source: Primary Survey

As per the mandate of the MGNREG Act, every Panchayat shall arrange and procure equipment needed to carry out the work. Regarding the equipment required to carry out the work, 89.84 percent of the

beneficiaries confirmed that they got adequate materials to carry out the work. However, the rest of the beneficiaries (10.16 percent) reported that they did not get materials to undertake works. It was informed that during the early years of the scheme implementation, the beneficiaries were provided with enough equipment, but currently the system is changing and they are informed to bring the necessary equipment needed mainly for water conservation and land development works. From the Chi-Square test it can be seen that there is no significant variation in the status of providing sufficient equipment to the workers to carry out the work. The result indicated that the system of providing work equipment to the workers exhibited a similar pattern all over Kerala.

Table 4 Distribution of sample beneficiaries by the status of visiting the worksite by the Panchayat officials

Status	Total		Region						Chi-square	Sig.
			North		Centre		South			
	n	%	n	%	n	%	n	%		
Yes	362	94.27	99	93.40	110	92.44	153	96.23		
No	22	5.73	7	6.60	9	7.56	6	3.77	2.017	0.365
Total sample	384	100.00	106	100.00	119	100.00	159	100.00		

Source: Primary Survey

MGNREGA Operational Guidelines direct Panchayat officials to frequently monitor the progress of work execution at the work site in order to complete it within the stipulated time period and to ensure minimum quality. Table 6.18 discloses that 94.27 percent of the beneficiaries confirmed that the officials visited the worksite. 5.7 percent beneficiaries denied the visit of officials to the worksite. Among the regions, Southern region secured the first position in the Panchayat visit followed by Northern region. The Chi-Square test result revealed that there is no significant variation among the beneficiaries regarding the visit of Panchayat officials in the worksite. From the analysis, it can be inferred that despite small variations, all over Kerala the practice of visiting worksite by the Panchayat officials is uniform.

Table 5 Distribution of sample beneficiaries by the frequency of Panchayat officials visiting the worksite

Frequency	Total		Region						Chi-square	Sig.
			North		Centre		South			
	n	%	n	%	n	%	n	%		
Twice	51	13.28	17	16.04	15	12.61	19	11.95		
More than 3 times	311	80.99	82	77.36	95	79.83	134	84.28	3.165	0.531
Never	22	5.73	7	6.60	9	7.56	6	3.77		
Total sample	384	100.00	106	100.00	119	100.00	159	100.00		

Source: Primary Survey

Beneficiaries were also asked about the frequency of worksite visit by the Panchayat officials. From table 5, it can be seen that 80.99 percent of the sample beneficiaries reported that the officials visited more than three times during work implementation and 13.28 percent reported that they visited two times. The remaining 5.73 percent recorded negative opinion in this regard. The result of Chi-Square test indicated that there is no significant regional variation among the beneficiaries regarding the frequency of officials visit to the worksite. The above analysis reiterates the proven fact that a robust PRIs in Kerala facilitates for the smooth implementation of MGNREGS in the State.

Table 6 Distribution of sample beneficiaries by the status of discussing about the selection of works in Gram Sabha meetings

Status	Total		Region						Chi-square	Sig.
			North		Centre		South			
	n	%	n	%	n	%	n	%		
Not at all	0	0.00	0	0.00	0	0.00	0	0.00	4.251	0.119
Sometimes	32	8.33	6	5.66	15	12.61	11	6.92		
Always	352	91.67	100	94.34	104	87.39	148	93.08		
Total sample	384	100.00	106	100.00	119	100.00	159	100.00		

Source: Primary Survey

MGNREG Act mandated that the decision to carry out a particular work shall be discussed during the Gram Sabha meetings and the needs of the local community regarding this have to be considered to undertake useful works to the rural community. GS is the primary forum for the workers to make demands and to determine the order of priority in executing works in their respective GPs. The responses of the beneficiaries regarding the extent of discussing the selection of works in the Gram Sabha meetings presented in Table 6 revealed that 91.67 percent of the beneficiaries confirmed that the decisions were taken during GS meetings and 8.33 percent responded that such matters were not discussed all the times. From the Chi-Square test, it can be seen that there is no significant variation among the beneficiaries regarding their opinion about the extent of discussing the selection of works in Gram Sabha meetings among different regions of Kerala. The result indicated that the practice of discussing the work matters in the GS meetings exhibited same scenario across the State.

Table 7 Distribution of sample beneficiaries by the type of work preferred by the beneficiaries

Preference	Total		Region						Chi-square	Sig.
			North		Centre		South			
	n	%	n	%	n	%	n	%		
Private	359	93.49	99	93.40	109	91.60	151	94.97	1.273	0.529
Public	25	6.51	7	6.60	10	8.40	8	5.03		
Total sample	384	100.00	106	100.00	119	100.00	159	100.00		

Source: Primary Survey

The responses of the beneficiaries about the type of work preferred by them revealed that about 93.49 percent of the beneficiaries preferred to undertake private works and the remaining 6.51 percent preferred to do public works. Among the three regions in Kerala, preference to private works was more in the Southern region (94.97) and it was low in the Central region (91.60). The Chi-Square test result indicated that there is no significant variation in different regions of Kerala regarding the preference of the beneficiaries to carry out a particular work. From the analysis, it can be concluded that all over Kerala, the beneficiaries are more interested to participate in private works. On enquiry, it was revealed that the easy availability of working tools and the likelihood of getting refreshment chances are the factors behind this preference.

Table 8 Distribution of sample beneficiaries by their perception about the usefulness of works

Perception	Total		Region						Chi-square	Sig
			North		Centre		South			
	n	%	n	%	n	%	n	%		
Neutral	41	10.68	13	12.26	13	10.92	15	9.43	0.598	0.963
Useful	297	77.34	81	76.42	92	77.31	124	77.99		
Very useful	46	11.98	12	11.32	14	11.76	20	12.58		
Total sample	384	100	106	100	119	100	159	100		

Source: Primary Survey

Table 8 snapshot the perception of beneficiaries about the usefulness of work carried out by MGNREGS in their area. This revealed that about 77.34 percent of them confirmed that these works are useful and 11.98 percent beneficiaries confirmed that the works are very useful to the rural people. Neutral responses were recorded for the remaining 10.68 percent beneficiaries about the usefulness of work. Region-wise analysis shows that Southern region reported more positive responses about the usefulness of work followed by Central region. However, the Chi-Square test result revealed that the differences in the perception about the usefulness of work are not significant between regions. It is significant to note that none of the beneficiaries reported a negative response in this regard.

Suggestions for Better Implementation of Works

The success of every wage employment scheme depends on correcting the anomalies which prevents the scheme from accomplishing the desired objectives. Since beneficiaries are the primary stakeholders of MGNREGS, they were asked to record their suggestions for better implementation of MGNREGS works. The responses were recorded and presented in Table below.

Table 9 Suggestions for better implementation of works

Suggestions for better implementation of works		
	n	**%**
More utilisation of waste lands	39	10.16
Need more work days	93	24.22
Need work regularly	139	36.20
No suggestions	11	2.86
Wages should be paid promptly	42	10.94
Works should be undertake in small & marginal land holdings also	60	15.63
Total sample	384	100.00

Source: Primary Survey

Above table revealed that 36.2 percent of the beneficiaries demanded regularity in work for proper work implementation and 24.2 percent demanded more work days irrespective of the stipulated 100 days employment. As per the table 15.6 percent demanded that work shall be undertaken in small and marginal land holdings so that poor people can also benefit from private works undertaking as part of MGNREGS work. Beneficiaries also suggested (10.16 percent) for more efficient utilization of waste lands, so that these lands can be used for agricultural purposes. It is also seen that 10.9 percent expressed their regret in delayed

wage payments. As per their opinion, prompt wage payments could result in better implementation of works. The remaining 2 percent of the beneficiaries did not suggest any measures for further improvement. The suggestions put forward by the beneficiaries is analysed by considering their characteristics using Friedman test and the result is presented in Table 10.

Table 10 Analysis of suggestions according to the characteristics of beneficiaries

Characteristics		Suggestions					Friedman Test	
		More utilisation of waste lands	Need more work days	Need work regularly	Wages should be paid promptly	Works should be undertake in small & marginal land holdings also	Chi-Square	Sig.
Age	Less than 40	1	5	4	2	3	15.032	0.005
	40-49	1.5	4	5	1.5	3		
	50-59	1.5	4	5	1.5	3		
	60-69	1.5	4	5	1.5	3		
	70 and above	3	1.5	5	1.5	3		
	Mean Rank	1.8	3.7	4.8	1.6	3.1		
Gender	Male	2	4	5	1	3	7.6	0.107
	Female	1	4	5	2	3		
	Mean Rank	1.5	4	5	1.5	3		
Social Category	SC	2	4	5	1	2	13.436	0.009
	ST	1	2	5	2	4		
	OBC	2	4	5	1	3		
	General	1	4	5	2	3		
	Mean Rank	1.63	3.63	5	1.63	3.13		
Religion	Hindu	2	4	5	1	3	10.508	0.033
	Muslim	1	3	5	2	4		
	Christian	1	4	5	2	2		
	Mean Rank	1.33	3.67	5	1.83	3.17		
Marital Status	Married	1	4	5	2	3	11.081	0.026
	Unmarried	2	2	5	2	1		
	Separated	2	3	5	1	3		
	Widowed	2	2	5	1	4		
	Mean Rank	2.13	3.25	5	1.75	2.88		
Educational Qualification	Primary	1	4	5	3	1	16.694	0.002
	High school	1	4	5	2	3		
	Higher Secondary	1	4	5	2	3		
	Degree/PG	2	5	4	1	3		
	Technical	2	3	5	1	3		
	Mean Rank	1.5	4.1	4.8	1.8	2.8		
Family Size	3	1	4	5	2	2	12.205	0.016
	4	2	4	5	1	3		
	5	2	4	4	3	1		
	5+	1	3	5	2	4		
	Mean Rank	1.5	3.88	4.88	2.13	2.63		
Status of House	Own	2	4	5	1	3	9.28	0.054
	Rented	1	4	5	2	3		
	Joint family	1	2	2	2	2		
	Mean Rank	1.33	3.83	4.5	2.17	3.17		

Source: Primary Survey

The table shows that the most important suggestion put forward by beneficiaries in the age group of less than 40 years is need for more work days as it has got the highest rank of 5 (ranks are given in reverse order). The second important suggestion of beneficiaries of this age group is the need for work regularity followed by works should be undertaken in small and marginal landholdings. They have given the lowest importance given to more utilization of waste lands. The suggestion of beneficiaries in 40-49 age groups is found to be different from the suggestion of youngest age group. They have given first importance to need work regularity followed by need for more work days. The lowest importance is given to more utilisation of waste lands and prompt payment of wages. Similar variation in the suggestion is also seen in other age groups. The result of Friedman test revealed that the suggestions put forward by beneficiaries vary significantly with respect to their age as the significance of Chi-Square value is less than 0.05. The gender wise-analysis of variation revealed that there is no significant variation between the opinion of male and female beneficiaries with respect to suggestions for better improvement. Both category give due emphasis on work regularity and for more work days.

While considering different social category, the most important suggestion given by all the categories is the need for regular work. The second important suggestion given by the SC beneficiaries is more work days. On the other hand, the need for undertaking MGNREGS works in small and marginal landholdings is the second important suggestion given by ST category. The lowest importance given by SC category is promptness in wages and that of ST is more utilization of waste lands to carry out works. The importance given by OBC category is almost similar to the suggestions given by SC category. The result of Friedman test presented in the table indicates significant differences in suggestions given by beneficiaries of different social category.

Similarly, result of Friedman test revealed that the suggestions put forward by beneficiaries belonging to different religion, marital status, educational qualification and family size varies significantly as the significance of Chi-Square value is less than 0.05. It is evident that majority of the beneficiaries suggested for regular work and the need for more work days. It is pertinent to note that beneficiaries who have comparatively better education have given the third importance to the need for taking up works in small lands. There is no significant variation among beneficiaries belonging to different status of housing, as the significance level of Chi-Square test is greater than 0.05.

The above analysis revealed that the crucial issue pertaining to MGNREGS work implementation in Kerala is irregularity in work allocation. The beneficiaries were not getting work regularly as per their demand. The need for more work days through MGNREGS is another notable suggestion given by the beneficiaries. It is to be noted that during the primary survey the guaranteed employment days was 100. Presently, it has increased to 150 days. It was observed that those who seek employment under MGNREGS demands work continuously and regularly. Therefore, it may be inferred that they perceive the work as their permanent job offered by government.

Execution of works in small and marginal landholdings and more utilization of waste lands are the other major suggestion put forward by the beneficiaries. Currently, majority of private works are carried out in landholdings of large size due to the limitations in carrying out different works in small land holdings. But this might result in a situation where the poor is being utilized for creating assets for those who have more lands.

The shortage of public lands to carry out work turns out to be a hurdle in creating public assets. In congruence to this, the beneficiaries suggest that proper measures should be taken to utilize waste lands to execute MGNREGS works. As opined by them, these lands can be converted to productive lands by undertaking land development activities through MGNREGS.

Conclusion

The study tries to trace out the key factors responsible for the effective implementation of works under MGNREGS from the perspective of MGNREGS beneficiaries. The foregoing discussions reveal that scheme is successful in reaching the targeted population in the State. It is widely known that more than 90 percent of MGNREGS workers in Kerala are women. The analysis reveals that the shortage of public lands to carry out work turns out to be a hurdle in creating public assets. Beneficiaries suggest that proper measures should be taken to utilize waste lands to execute MGNREGS works. As opined by them, these lands can be converted to productive lands by undertaking land development activities through MGNREGS. Lack of adequate public lands in executing works and issues in handling online work assessments are the areas of concern from the official side. If the implementing authorities take appropriate measures to address all the issues with regard to work execution, there are rays of hope for MGNREGS in Kerala to transform not only the lives of its beneficiaries, but also the structure of rural economy in the State.

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